

# AMERICAN RAILROAD JOURNAL.

## STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

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### American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & Co., 136 NASSAU ST.

Saturday, January 12, 1850.

[*Foreign Correspondence of the Railroad Journal.*]  
LONDON, Dec. 3d, 1849.

H. V. Poor, Esq:

Dear Sir—Instead of remaining in England for a considerable length of time, as we expected on our arrival, we shall on account of the extreme unpleasant weather at this season, hasten to the most southern point we intend to visit, and thence return leisurely as the season advances. This arrangement will defer our examination of this country, and of course any amount of its public works till the spring, when we can pursue our inquiries under more favorable auspices. At present the weather here is such as we know nothing of in America. In addition to cold and damp, which will on short exposure completely chill one, the dense volumes of smoke and fogg mingled together, almost entirely exclude the sun, which we have seen but twice in 11 days after daylight, till nearly ten o'clock, and close it at three P. M. More than once the darkness has been so great at mid-day that we could not distinguish objects across the street. The streets were all lighted as at night, and we were unable to take lunch without candles. And yet we are told

that so far from being unusual in London, it is often worse, inasmuch as cabs and carriages cannot move at all during the day, without a man to precede them bearing a lantern, and then at no faster pace than a walk. All this may be quite endurable to Englishmen who are used to it, but I prefer to see England if possible in a better light.

Railways are in exceedingly bad odor here at the present time. All confidence in the stock as a safe and profitable investment, seems to be gone.—One extreme usually follows another, and the depressed condition of railway stocks is but the natural result of the speculative mania for railways which preceded it—aggravated much, it must be confessed, by inexcusable extravagance, gross mismanagement, and even fraud on the part of directors of several important companies. Unwearying confidence, which seized upon and pushed forward every project for a railway with hardly an inquiry as to its feasibility, is very naturally succeeded by a general and indiscriminate distrust, which turns a deaf ear upon all similar projects, and refuses anything like a fair bid for the stock of those which are completed.

The stock of the Southeastern railway company for instance, one of the most important lines connecting London with the continent by Folkestone and Dover, and lying through a fine agricultural district, now brings 17 to 17½ pounds sterling. Its par value is (33) thirty-three pounds, and it has sold as high as forty-five pounds the share, and even more than that. The price now is probably almost as much below its real value as it was formerly above it.

This panic has put a stop to the construction of new lines, suspended operations on many done, and together with the small, and often no returns from manufacturing capital, has contributed much to produce the present "glut" of money seeking investment here. The gold and silver in the banks, has augmented by the very large sum of £341,494, making a total of £16,380,184. The reserved notes in the bank have increased in a still greater proportion, the amount being £11,574,395, and the amount of mercantile securities continued to diminish, notwithstanding the fall in the rate of interest. These facts show the amount of unemployed capital to be immense. Bankers will allow but one per cent. on funds, and I am told by a gentleman who is knowing to the fact that good paper can be readily discounted at 1½ per cent. Consols

are now 95½ and ¾, having risen two per cent. in two weeks, which, measured by the public funds alone is an addition to the national capital of £16,000,000 sterling. With the almost unexampled amount of capital seeking investment, the low rate of interest here, the inquiry may naturally arise, why American securities of 5 and 6 per cent. are not eagerly seized upon. The answer is substantially that made me by a gentleman who was complaining of the difficulty he found in investing large amounts of capital, which was in short this—Some American securities have proved bad, and therefore all are bad. Mississippi script, and that of New York city, the New England States, and the city of Boston, are put in the same category.—The first proved bad, therefore they all are—a mode of reasoning that has more claims to beauty for its conciseness than for its soundness. Liverpool city bonds are here believed to be the best security in the world, because the city is rich, and in case of failure to pay, a judgment be obtained, and property levied on: yet you will hardly find a man who invests in those securities, or seeks to do it, and for the reasons stated, who is aware that the city script of Boston or New York is equally good, and for precisely the same reasons. There is a strange want of intelligent dissemination in English capitalists—they seem averse to informing themselves and exercising their own judgment, preferring to let some leader decide the question for them and then to go it blind (pardon the expression) on his *ipse dixit*.

It is this propensity to follow a "lead," and their aversion to the exercise of an intelligent discriminating personal oversight of their affairs that has made capitalists the ready dupes of railway speculations—have enabled directors of railways to so misdirect them, and which now dooms railway stocks to the same indiscriminate distrust.

The suspension of railway construction must press heavily upon the manufacturers of rails.—They have already suffered in common with the manufacturing interest generally. The diminished demand at home for rails, and the animated struggle which the bonded interest is preparing to make at the coming session of Parliament for the re-enactment of duty upon foreign breadstuffs, and in which struggle they feel confident of success, offer them no very flattering prospect for the coming year, and will most likely prevent any material improvement upon present prices, unless per-

chance the prospect, that the American buyers will impose a duty upon railroad iron, should make an increased demand for it, in which case prices may go up for a time; but otherwise many of the works will most likely in whole or part suspend operations, as some have already done.

The annexation movements in Canada seem still to attract very little attention. The opposition papers occasionally ask what such silence means; but I judge the general feeling is to let the Canadians do about as they please.

J. M. A.

For the American Railroad Journal.

*Glimpses at Liverpool as it was and is, with hints at the causes of its growth and commercial importance, etc.*

LIVERPOOL.

"Nurse of Art! the city reared  
In beauteous pride, her tower encircled head:  
Then Commerce brought into the public walk  
The busy merchant; the big warehouse built;  
Raised the strong crane; choked up the loaded  
[street  
With foreign plenty; and thy stream O! Mersey,  
Chose for a grand resort!"

More than two hundred years ago this city was described as "the little creek of Liverpool," and I find in its history that as far back as 1565 it contained 690 inhabitants, 138 houses and owned 12 vessels of two hundred and twenty-three tons burden in the aggregate. A house (probably a cottage) rented for four shillings per year, and ten pounds sterling (less than fifty dollars) was the purchase price of one of them. Wheat then sold for one shilling a bushel, a fat sheep for two shillings and six pence, and the laborer obtained four pence per day for his labor.

In 1709 its population was still less than 8,000. Its number of vessels was 84; its tonnage 5,789.

What a contrast does the present Liverpool make with this picture. From an unimportant village it has grown more rapidly, perhaps, than any town in Europe to great commercial importance and wealth. It is second only to London in the British empire. Then there were no docks to protect her vessels; no spirit for commercial enterprise. Now on the contrary her docks extend for miles along the river side, literally presenting "a forest of masts," and her thousand ships plough every ocean and bring to her port the products of every clime. Her streets, then so few, and dirty, and narrow, now multiplied by hundreds, are wide, clear, and inhabited by an intelligent population of more than the quarter of a million.

It is estimated that she carries on four-fifths the trade between Great Britain and the United States, and one-fourth the trade of the British empire.

The amount of her exports and imports do not fall short of £45,000,000 per annum, while that of the United Kingdom amounted in 1846 to £223,840,551, those of Liverpool being about one-fifth the whole. In the same year the number of her vessels was 1461, their aggregate tonnage 387,008 tons. The gross revenue collected at the port for that year £3,622,056.

The following table exhibiting the number of vessels entered at this port from 1812 to 1845, shows with what rapid and steady strides her commerce has increased.

Years.	Vessels.	Tonnage.
1812.....	4,559	446,788
1815.....	6,440	709,849
1820.....	7,276	805,033
1825.....	10,837	1,223,820
1830.....	11,214	1,411,964
1835.....	13,941	1,768,426
1840.....	15,998	2,445,708
1845.....	20,521	3,016,531

To those who are striving to build up cities in the new world it may not be uninteresting to enquire what causes have conspired to promote the growth of Liverpool, and make it a rival even of London, the great commercial city of the world, which has been petted by special legislation and government patronage, while the former has been obliged to rely upon its own resources.

In answer to the inquiry, I should say, 1st. The energy and enterprise of her merchants. Since 1708, when they constructed the first wet dock in this kingdom if not in the world to the present time, they have allowed no advantage to escape unimproved. This town was formerly a mere dependency of Chester, but as the river gradually filled up, impeding its commerce, the merchants of Liverpool improved their harbor, and finally took the whole trade from their less enterprising neighbors of Chester.

Formerly the slave trade presented an opportunity for profitable adventure, and more credit to their sagacity than their morality perhaps. They embarked in it extensively. But this nefarious source of profit was taken from them by the abolition of the slave trade in 1806, at which time they had 111 vessels of 25,949 tons burden in the aggregate engaged in the trade. They also engaged extensively in privateering during the French and American wars, having in 1779, 120 vessels thus employed.

They were first to join hands with their friends across the Atlantic in establishing lines of sailing packets, by which they secured regular communication between their city and New York. There are 24 packet ships of from 700 to 1000 tons burden, each of which ply between these places, sailing from each port on the 1st, 6th, 11th, 16th, 21st and 26th of every month.

They were first also to embark in ocean steam navigation, and their success has been worthy of their enterprise. But while these and various other projects have engaged their attention, no means have been left untried, no expense spared, that would increase their business or facilitate its transaction.

The utmost freedom was early given to enterprise by abolishing all exclusive laws, and every encouragement held out to the various branches of industry.

The natural advantages of Liverpool are great. While its location is not unfavorable to commerce with the various foreign countries, its central situation in the kingdom, and proximity to Ireland, point to it as the great entrepot of the two countries.

It is also surrounded by such towns as Manchester, Oldham, Berry, Bolton, Ashton, Nantwick, and other manufacturing towns, for which it imports cotton and other articles, and from which it receives the manufactured fabrics that supply the markets of the world. Its climate, though humid, is favorable to business, in winter being six degrees warmer than the same latitude on the eastern coast, and in summer cool and pleasant.

But the merchants of Liverpool did not rest her, and their success, alone upon what nature had done for them. A judicious system of canals, and later still of railroads, was completed, by which she connected herself with all parts of the kingdom, and drew to herself a fresh increase of business. Her docks have been increased and improved yearly, till the wet docks now number more than 20, covering the space of one hundred and seventy-four acres, and affording fourteen miles of quay space, exclusive of the new dock now building, and the

dry docks which cover twenty acres. These docks are protected by a substantial sea wall, built of rough hewn stone four miles in extent, and are superior to any in the world, except those of London. Liverpool has profited with almost Yankee tact by several incidental advantages.

The adoption of the warehousing system enabled her at once to put her docks and warehouses into profitable use, which was done so successfully as to give her almost the advantages of a free port.

Subsequently, the partial opening of the East India trade, and latterly the entire abolition of the East India company's monopoly, has opened to her merchants a field of enterprise which they have taken good care to improve.

Liverpool having now formed commercial ties with the principal cities of the world, and attained a position in which she is second to but one city in the empire, may now without presumption aspire to be the first. Her naturally favorable position, her magnificent artificial facilities, her enterprising merchants, her skilful engineers, her cheap and inexhaustible supply of coal, constitute elements of power which, with the new agency of steam that is extending its conquests over the world, will in the next half century enable her to take the crown from London as queen of commerce, and compete perhaps successfully (though I hope and believe not), with her trans-Atlantic sister, New York, which is now fairly enlisted as competitor for this magnificent prize. It is worth a contest, and we may be sure neither will yield the palm without an effort worthy of themselves.

An Account of the Construction of the Britannia and Conway Tubular Bridges.

Continued from page 11.

"At this time, July 19-21, a considerable number of experiments had been made—nearly the whole of the cylindrical tubes had been tested, and preparations were then in progress for the rectangular and elliptical forms. The difficulties experienced in retaining the cylindrical tubes in shape when submitted to severe strains, naturally suggested the rectangular form: many new models of this kind were prepared and experimented upon before the end of July; and others with different thicknesses of the top and bottom plates or flanges, before the 6th of August. This is clearly indicated by the date of the experiments, and the letter of August 6, addressed as before to Mr. Stephenson. This letter, it will be observed, strongly enforces the striking and unmitigable evidence, afforded by the experiments, of the necessity of a close adherence to the principle of the simple beam or girder. Up to this time my object has been to test the principle, originally suggested by Mr. Stephenson, of a structure, every part of which, although rigid, should be brought into a state of tension, and whose strength should consist, not as that of a beam or girder does, in its resistance to extension on the one side and to compression on the other, but in a resistance to extension on both sides. For the adoption of such a form, if it could have been found, there was this plausible argument: that the tenacity of wrought iron being much greater than its resistance to compression, there would obviously have been an economy of the material in so shaping the tube as to call into action its tenacity only. All my attempts to find such a shape as this were, however, fruitless. Every experiment gave the most certain evidence of a compression on the one side of the tube and extension on the other, and it yielded alike when the one resistance or the other was overcome. From this time the question presented itself, therefore, under a simpler form. I looked upon the tube as a hollow girder, whose strength was dependent upon the same causes as that of any other, and I saw plainly the direction my experiments should take and the principle by which I was to be guided. That determined opposition which I shall be found in this correspondence to have given to the use of chains or any other flex-



ible auxiliary for the support of the tube, dates of the same thickness, but the middle part,  $x$ , may from this period.

"MILLWALL, August 6, 1845.

My Dear Sir: For the last eight days I have been constantly employed on the experiments, and although some of them have not always indicated the results expected, they are nevertheless not only useful as regards the object of our research, but highly satisfactory. From these investigations we derive several important facts, one of which I may mention, namely, the difficulty of bringing the upper, as well as the lower side of the bridge, into the tensile strain. For this object several changes were effected, and attempts made to distribute the forces equally, or in certain proportions throughout the parts, but without effect, the results being in every experiment that of a hollow beam or girder, resisting, in the usual way, by the compression of the upper and extension of the lower sides. In almost every instance we have found the resistance opposed to compression the weakest, the upper side generally giving way from the severity of the strain in that direction. These facts are important so far as they have given rise to a new series of experiments, calculated to stiffen or render more rigid the upper part of the tube, as well as to equalize the strain, which, in our present construction, is evidently too great for the resisting forces of compression. I entertained hopes of seeing you here before now, as I was anxious to show you the more interesting portion of the experiments, and to have had the benefit of your suggestions and advice.—As it is, and under present circumstances, I trust I have your permission to pursue the inquiry, and to introduce such new forms and combinations as will fully determine the law of resistance, and also the strongest form of tube, when acted upon by a force calculated to crush or tear it asunder. I am leaving by this evening's train for Manchester, and will again return to the experiments in about a fortnight, or as soon as the addition tubes are prepared; in the meantime you will probably report progress, as some of the directors and secretaries were here on Saturday for that purpose.

"I am, etc., W. FAIRBAIRN.

"R. Stephenson, Esq., C. E."

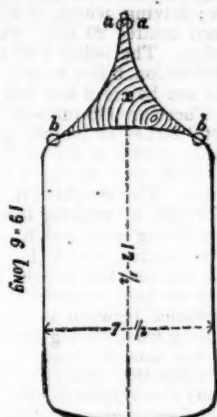
"It will be seen by this letter that the weakness of the tube had been recognised in its upper surface which yielded to compression before the under side was upon the point of yielding to extension; and that the course which the experiments henceforth took of so strengthening the upper surface, that it should not be on the point of yielding to compression until the under surface was about to yield to extension, had been already shaped out. This state of the tube was a condition necessary to the greatest economy of its material, for in any state in which it was not on the point of yielding on the one side at the instant it was on the point of yielding on the other, some of the material might be taken from the stronger side without causing that to yield, and added to the weaker so as to prevent that side from yielding, and thus the tube would be rendered stronger by a new distribution of its material. It was with a reference to this principle that the rectangular form of section had suggested itself to me, in the place of the circular or the elliptical forms proposed by Mr. Stephenson, and that I had ordered the top of the tube to be thickened. It now occurred to me that the top might be strengthened more effectually by other means than by thickening it, and I addressed the following letter to my son, four days after the date of the last, directing him to cause two additional tubes to be constructed, the one rectangular and the other elliptical, with hollow triangular cells or fins to prevent crushing. These experiments led to the trial of the rectangular form of tube with a corrugated top, the superior strength of which decided me to adopt that cellular structure of the top of the tube which ultimately merged in a single row of rectangular cells. It is this cellular structure which gives to the bridges, now standing across the Conway straits their principal element of strength.

"MANCHESTER, August 10, 1845.

I shall require the following models made. One of this kind (see fig. 4), composed of plates 1-16th of an inch thick, the top,  $a, a$ , to be made of plates

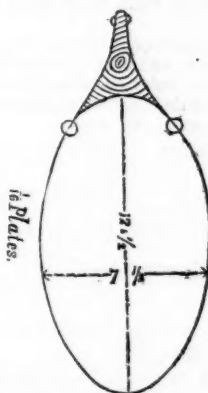
of the same thickness, but the middle part,  $x$ , may

Fig. 4.



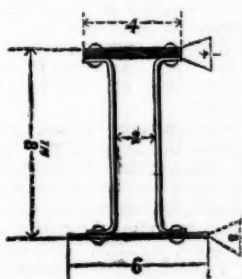
be left out, and filled up with wood, to give the top side stiffness. The joints of the plates below to be carefully made, with a stronger piece, double riveted, over these, in order to cause the plates to be torn asunder instead of the joint. The top,  $a, a$ , to be firmly riveted to the tube all the way along as shown at  $b, b$ . Another of the same kind to be made of the same length and thickness of plates, but of this shape (see fig. 5), 19 feet 6 inches long.

Fig. 5.



These may be made out of some of the old ones, after proper drawings have been taken of them.—To be crushed or torn asunder with the weights suspended from the inside, as before. Also, one small beam (see fig. 6), 12 feet long, as under:—

Fig. 6.



Thickness of top plate  $\frac{1}{16}$  of an inch; sides 1-16th of an inch; bottom  $\frac{1}{16}$  of an inch. I think these will be all we shall require at present; and as soon as you are ready let me know, and I will be with you to see them tested. I am, etc.,

W. FAIRBAIRN.

"T. Fairbairn, Esq.

"The experiments had now assumed a shape which seemed to me to require the assistance of a mathematician who should deduce, if that were possible, a formula which, from the observed strength of a tube of a lesser, might enable me to calculate the strength of one of a greater size; and

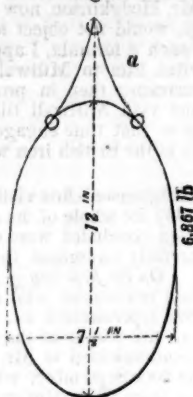
conceiving that Mr. Hodgkinson, now Professor at University college, would not object to undertake the discussion of such a formula, I applied to him to do so, and invited him to Millwall to witness some of the experiments then in progress. Mr. Hodgkinson did not visit Millwall till the following month, being at that time engaged in testing some railway bars at the British iron works, South Wales.

"During Mr. Hodgkinson's first visit to Millwall (September 19, 1845) the whole of the experiments which had then been concluded were explained to him, and he carefully examined the apparatus which I had used. On the first day of his visit, the tubes which had been constructed with single hollow or cellular tops were experimented on. The forms of these tubes, and the results of the experiments upon them, are communicated to Mr. Stephenson in my letter of the 20th September, which follows. One of them had a piece of fir timber fitted in the cell or fin, with a view to keep that part in form, and prevent its losing shape from the crushing force; but in consequence of the difficulty which was experienced in making the timber accurately fill the whole space, it proved of little value. Superior results were however obtained from the increased surfaces which were offered to compression on the top sides by the fins, and my attention was naturally directed to the question, how far it was possible, by some other arrangement, better to accomplish the object of the cellular structure. Immediately upon the completion of the experiments on the 'fin' tubes, I ordered the preparation of another form with a corrugated top, resembling in section the eyes of a pair of spectacles, rightly anticipating from this form of tube a considerable increase of strength. The cellular form of top offered, however, according to the experiments already made, such decided advantages, that in the following letter I ventured to anticipate, even at this early period, an ultimate cellular form of section for the great bridge itself, and proposed to Mr. Stephenson two ideas, the one of a tube with a series of square cells on the top, as at  $a, a$ , (see fig. 9), and the other with a number of circular pipes having flat plates riveted to their tops and bottoms, as shown at  $a$  (see fig. 10). The reader will not fail to observe how much the first of these sketches resembles the tubes actually constructed for the Conway and Britannia bridges. The whole of the arrangements for our subsequent proceedings were pointed out at the time to Mr. Hodgkinson, and appeared to meet with his approval.

"[Private.]—MILLWALL, Sept. 20, 1845.

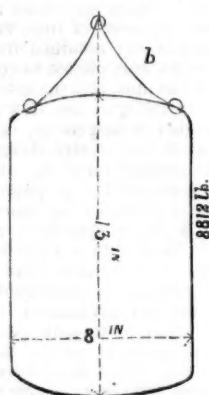
My Dear Sir: I have been uninterruptedly employed on the experiments for the whole of this week, and for two days I have had the benefit of the presence and assistance of my friend Mr. Hodgkinson. According to his views, as well as my own, we are progressing satisfactorily; and altho' we have not as yet arrived at the strongest form of tube, we are nevertheless approaching that desideratum. You will be aware, on referring to my last letter, that the great difficulty we had to encounter was a due proportion of the parts, so as to neutralize or render the two resisting forces of compression and extension equal; out of nine experiments on cylindrical tubes, two failed by crushing in at the top, and seven by tearing asunder at the rivet holes. The latter were, however, fractured, owing to the closeness of the rivet holes and the construction of the tubes, the foreman having omitted to cross the joints. From eleven experiments on rectangular tubes, eight yielded to the crushing force, and three only were torn asunder by extension. The elliptical or egg shaped tubes invariably failed, with only one exception, by compression; four having been crushed in at the top, and only one torn asunder at the bottom. Collectively, these appeared to indicate weakness on the upper side of the tube, and a necessity for a change of form in order to give stiffness and rigidity to that part. To counteract the forces of compression I got two tubes constructed of the annexed forms: one elliptical, with a deep fin,  $a, a$ , on the top, and the other rectangular, with a similar fin at  $b$ , as per annexed sectional sketch. These were according to the dimensions here marked, the one 12 by 7 inches, and the other 13 by 8 inches, and 18 feet 6 inches between the supports. The plates were 1-

Fig. 7.



16th of an inch thick, and the tubes broke or were

Fig. 8.



crushed respectively with dead weights of 6867 lbs. and 8812 lbs.

To be continued.

#### Institution of Mechanical Engineers.

At a meeting of the above institution held at Birmingham, November 24th, R. Stephenson, Esq., M. P., in the chair, the following papers were read:

*On the Economy of Railway Transit.*—By Mr. James Samuel, of the Eastern Counties railway.

The object of the paper was to show the necessity of working branch lines with lighter and less expensive trains and locomotives than are at present in use, with a view to diminish first cost, consumption of coke, and deterioration of permanent way. By returns of the number of passengers conveyed on the Eastern Counties and Norfolk railways, they showed that the greatest number of passengers in any main line train at any one time was 231, and the least number 7; the greatest number in any of the branch line trains being 82, and the least number 3. And that there were conveyed on the Eastern Counties Branch lines during the year 1847, 42,644 tons of passengers (calculating each passenger with his luggage at 168 lbs.), and that the weight of engines and carriages required to convey them was about 1,112,500 tons, being in the proportion of 26 to 1.

The main line engines consumed from 24½ to 40½ lbs. of coke per mile, and the engines for working the branch line trains consumed from 16½ to 35½ lbs. per mile, varying of course with the size of the engine employed to do the work, the smallest engines invariably consuming the smallest quantity of fuel for the same work done. The average consumption of coke during the half year ending 4th July, 1849, was 31½ lbs. per mile for passenger engines, and 47½ lbs. per mile for goods engines.—These returns refer to a stock of about 200 engines, and a length of line of about 310 miles.

Thus the writer came to the conclusion that it would be possible to construct a carriage and engine combined, of sufficient capacity for branch traffic, and by his advice the directors of the Eastern Counties railway gave orders to Mr. Adams to construct such a carriage, subject to the approval

of Mr. Hunter, the locomotive superintendent.

The carriage was accordingly built, and called the Enfield, from the branch which she was intended to work. The engine has 8 inch cylinders, and 12 inch stroke; driving wheels 5 feet diameter; distance between centres 20 feet; width of framing 8 feet 6 inches. The boiler is of the ordinary locomotive construction, 5 feet long by 2 feet 6 inches diameter. The fire box is 2 feet 10½ inches by 2 feet 6 inches. There are 115 tubes of 1½ inch diameter and 5 feet 3 inches in length, giving a total of 230 feet heating surface in the tubes. The area of the fire box is 25 feet, giving a total heating surface of 255 feet. The weight of this steam carriage is 15 tons 7 cwt. in working trim. The engine and carriage being combined, it is evident that the weight on the driving wheels is increased by the load carried, and that this weight increases in the same ratio as the load required to be taken.—The extreme distance between the centres of the leading and trailing wheels being 20 feet, accounts for the steadiness of this machine; there is indeed no perceptible oscillation when travelling at the highest speed, and this verifies the observation that "the steadiness of an engine depends not on the position of the driving wheel, but upon the length of the rectangle covered by the wheels." This engine at the same time daily traverses curves of 5 or 6 chains radius.

The Enfield steam carriage was originally intended to convey 84 passengers, but as it was found that when she was put on as an express train the passengers increased in number, a North Woolwich carriage was attached capable of conveying 117 passengers, and also a guard's break van, making provision altogether for 150 passengers, which is now her regular train taken at a speed of 37 miles per hour.

This engine commenced her regular work about eight months since, and the following return shows the miles run and coke consumed by this engine during the 7½ months' regular working from January 29th to September 9th, 1849.

14,021 total miles run.	743 cwt. coke consumed
	[in running.
	408 cwt. coke consumed
	[in standing.
705 hours running time.	286 cwt. coke consumed
	[in getting up steam.
1,457 hours standing time.	—
	1,434 cwt. total coke consumed.
	[summed.
2,162 total hours in steam.	11'48 lbs. per mile average consumption of coke.

The Enfield is in steam 15 hours per day, the fire being lighted about 6 in the morning and drawn at 10 o'clock at night. But of these 15 hours it appears by the return that she is engaged running only 5 hours, the remaining ten being employed standing in the siding. It was found by experiment that the quantity of coke consumed standing was 32 lbs. per hour, and after deducting this and the quantity consumed getting up steam, it will appear that the actual consumption of coke running is under 6 lbs. per mile. It must also be particularly borne in mind that this consumption of coke includes the total goods and coal traffic on the branch amounting to 1,410 tons, viz: 169 tons of goods and 1,241 tons of coal.

The Enfield steam carriage worked the 10 a. m. passenger train from London to Ely on 14th June, a distance of 72 miles, taking behind her three of the ordinary carriages and two horse boxes; she arrived at Ely 8 minutes before time, and the total consumption of fuel, including the getting up steam, was found to be 8½ lbs. per mile. The tubes of the boiler are only 5 feet 3 inches in length, and the economy of fuel is consequently scarcely at a maximum.

Another engine on a similar plan to couple with a 40 feet carriage is now nearly ready, the tubes being 6 feet 6 inches long, from which is expected even more economical results.

The result of the writer's experience is the conviction, that for express purposes, and for the larger portion of the branch traffic on railways, the light steam carriage is the best adapted and most economical machine, both as to first cost compared to the work done, and in working expenses.

The first cost of a large engine, tender and four carriages has been £4,000. The steam carriage

for the same number can be made for something less than one-half the cost.

*Remarks.*—Mr. McConnell gave much credit to Mr. Samuel for the introduction of this branch traffic carriage. If managers of railways could always calculate the number of passengers to be carried, he (Mr. McConnell) could conceive that a great economy might be effected, even under the present system. But this was impossible. How far, under these circumstances, Mr. Samuel's carriage might become useful, he was not prepared to say. Undoubtedly with the present carriages the proportion of the tare to the passengers carried was very great; and although a case which rarely happened, instances had occurred where the tare was 50 tons to 3 tons of passengers. But even taking the weight of passengers at 10 tons, 50 tons of carriages was unquestionably a large proportion of dead weight to carry; and he considered that the long carriage, if always likely to be well employed would be an advantageous mode of saving the dead weight, more especially on branch lines, and at the junctions where such branches came in.

Mr. Samuel further explained, that as the length of coupling of the engine wheels in the Enfield was only 5 feet 4 inches, with an 8 inch cylinder, it was necessary to attach the carriage and engine on one frame, otherwise it would be too short to run steadily; the effect produced by the carriage was like the stick of a rocket in steadying the motion. But in the Cork and Bandon engine with a 9 inch cylinder, the length of coupling of the wheels was 10 feet, and no carriage was required to produce steadiness, as the rectangle on the rails was so much longer. In the case of large engines, where the distance between the axles had been increased to 66 feet, a greater steadiness was observable.—There was accommodation in the carriage for 15 first class and 116 other passengers, giving a total accommodation for 131 passengers; and this he considered the most serviceable for working the express traffic. One of these steam carriages was being prepared for working on a railway in Scotland, at a contemplated speed of 40 miles an hour. At the present time it was impossible to keep the road in good repair, especially on the old lines, in consequence of the enormous weight of the engines. The Enfield engine was worked at 120 lbs. pressure, while in ordinary engines it did not exceed 80 lbs., and hence an advantage of 40 lbs was obtained.—The heating surface of the fire box was 25 ft. He had, with the Enfield engine, made the quickest journey ever performed between Norwich and London. With a train capable of containing 84 passengers they performed the distance of 126 miles in 3 hours 35 minutes, including stoppages. Another advantage in a large carriage of this description resulted from making use of the side space, for there were only 8 wheels to do the work of 24, and at the same time they had no greater amount of weight on each wheel than under the ordinary system. The whole weight was 9 tons without passengers, and 85 passengers might be taken at an average as weighing 6 tons.

The President considered that they were much indebted to Mr. Samuel for his excellent paper, and he regretted that many interested in the economical working of railways had absented themselves from that meeting. The subject of economical transit had, of course, occupied his attention, and he must say that, although he considered the suggestion of Mr. Samuel, so far as certain branch lines were concerned, was entitled to the consideration of all railway companies, yet he (the President) did not agree with Mr. Samuel to the full extent. On small local lines—such as those from London to Greenwich, and London to Blackwall—such carriages would be very valuable in lessening the expense of working, but he could not agree in thinking that for express purposes, or any other, such carriages would or should become popular on main lines. He could not agree with Mr. Samuel, also, with reference to the necessity of fixing the engine to the carriage, for the purpose of giving it steadiness. It appeared to be like riveting harness to a horse. There was no mechanical necessity for it. He would advise Mr. Samuel not to overstrain his principle by endeavoring to apply to trunk lines what would be manifestly beneficial to branches. The public expected certain comforts in railway travelling, and no system that could be



devised, would reconcile passengers to be packed together like fish. He (the President) felt that, occupying as he did a position in the management of railways that might give his opinion weight, he had thought it right to say what he had done, lest he might be considered tacitly to admit that that which engineers had been doing since 1831 in increasing the weight of engines had been practically wrong.—C. E. & A. Journal.

#### Finances of Pennsylvania.

We give the following extracts from the recent Message of the Governor of this State touching its financial condition:

The consideration of the Legislature is respectfully invited to the financial condition of the Commonwealth.

The present funded debt is as follows:

6 per cent. loans. ....\$2,041,022 51  
5 per cent. do .....37,336,716 90  
4½ per cent. do ..... 200,000 00

\$39,577,730 41

Unfunded debt, to wit:

Relief notes in circulation, without interest, \$653,164 00

In certificates outstanding, 179,422 91

unclaimed 4,448 38

Interest on certificates to be added when the same shall be funded or paid..... 11,294 34

Domestic creditors on settlement..... 85,104 88

\$933,434 51

Amount of canal, railroad and motive power debts, prior to Dec. 1, 1848, and unpaid by the appropriations of the last session..... 63,239 53

Total indebtedness of the commonwealth, Dec. 1849..... \$40,574,413 45

The funded debt on the 1st Dec., 1848, was, \$39,393,350 24

Unfunded debt..... 1,081,386 69

Amount of Canal, railroad and motive power debt, constructed prior to Dec. 1, 1848, 367,642 38

\$40,842,379 31

Amount of public debt paid during the year 1848, exclusive of the sum paid commissioners of the sinking fund..... \$267,965 86

Amount paid during the year 1849 to the commissioners of the sinking fund..... 227,513 53

Amount appropriated during the year towards payment of public debt..... \$495,479 39

In exhibiting the operations of the treasury for the last fiscal year, the sum of \$130,000, borrowed on special loan for the avoidance of the Schuylkill Inland Plane, and included in the aggregate of public debt in December, 1849, should be added to the above stated sum of \$495,479 30.

The amount of receipts at the treasury during the year ending Dec. 1, 1849, is..... \$4,433,688 65

The amount of expenditures during the same period is..... 4,084,771 80

Balance in the treasury on Dec. 1, 1848..... 577,290 39

Balance in the treasury on Dec. 1, 1849..... 826,207 24

Amount paid to commissioners of the sinking fund to Jan. 1, 1850, \$227,513 53, with which was purchased of the funded debt, and transferred to the commonwealth, 253,500 00

Difference between the indebtedness of the State on the 1st Dec. 1848, and Dec. 1, 1849..... 267,965 86

Total amount of public debt paid during the year..... \$521,465 86

Estimates of the receipts at the treasury during the year 1850:

From lands.....	\$20,000 00
Auction commissions.....	22,000 00
" Duties.....	50,000 00
Tax on Bank Dividends.....	130,000 00
" Corporation stocks.....	160,000 00
" Real and Personal Estate.....	1,330,000 00
" Tavern Licenses.....	80,000 00
" Retailers' Licenses.....	160,000 00
" Pedlars' Licenses.....	3,000 00
" Brokers' Licenses.....	12,000 00
" Theatre, Circus, and Menagerie Licenses.....	3,000 00
" Billiard Rooms, Bowling Saloons, Ten Pin Alley Licenses.....	5,000 00
" Distillery and Brewery Licenses.....	1,500 00
" Eating Houses, Beer Houses, and Restaurant Licenses.....	15,000 00
" Patent Medicine Licenses.....	3,000 00
" Pamphlet Laws.....	500 00
Militia Fines.....	2,000 00
Tax on Writs, Wills Deeds, &c.....	40,000 00
" Certain Offices.....	20,000 00
" Collateral Inheritance.....	200,000 00
Canal and Railroad Tolls.....	1,825,000 00
Canal fines and sale of old materials.....	5,000 00
Enrollment of laws.....	11,000 00
Premiums on Charters.....	40,000 00
Tax on Loans.....	125,009 00
Dividends on Turnpike and Bridge Stock.....	2,000 00
Nicholson Lands.....	300 00
Accrued Interest.....	5,000 00
Refunded Cash.....	5,000 00
Escheats.....	2,000 00
Fees of Public Offices.....	2,000 00
Miscellaneous.....	2,000 00
Interest on stock purchased.....	15,000 00
	\$4,566,300 00

Estimated payments during the year 1850:	
To Public Improvements.....	\$640,000 00
Expenses of government.....	235,000 00
Militia expenses.....	4,000 00
Pensions and Gratuities.....	20,000 00
Charitable Institutions.....	80,000 00
Common Schools.....	200,000 00
Interest on Loans.....	2,005,000 00
Guarantees of Interest.....	32,500 00
Domestic Creditors.....	10,000 00
Damages on Public works.....	20,000 00
Special Commissioners.....	2,000 00
State Library.....	2,000 00
Public Buildings and Grounds.....	2,000 00
Penitentiaries.....	15,000 00
House of Refuge.....	5,000 00
Nicholson Lands.....	300 00
Escheats.....	2,000 00
Abatement of State Tax.....	40,000 00
Counsel fees and Commissions.....	2,000 00
Miscellaneous.....	5,000 00
Inclined Plane, (Schuylkill).....	270,000 50
North Branch Canal.....	150,000 00
Commissioner's Sinking Fund.....	293,000 00
	\$4,034,800 00

The foregoing estimated balance in the treasury at the end of the fiscal year 1850, would appear to justify the appropriation of \$40,000 towards the completion of the Western reservoir at Johnstown, as hereinafter recommended. It would also authorize the appropriation of a sum not less than \$300,000, in addition to the amount already appropriated, to be expended in the completion of the North Branch canal.

The Legislature at its last session authorized the re-issue of the relief notes then in circulation, and suspended their cancellation for three years.

The amount of the whole issue now outstanding is..... \$653,164 00

The amount paid into the treasury and supplied by a new issue is... 442,537 00

Balance.....\$200,927 00

The above balance has been destroyed, or has failed to reach the treasury during the year. These notes, the redemption of which being amply secured, and affording a safe and convenient local currency, have the confidence and favor of the citizens. It is therefore recommended that authority be given to the proper officers, to keep them in good condition by a new issue, in lieu of such as may become mutilated and defected.

In addition to the suggestions made to the last Legislature on the subject of the monied affairs of the state, it is deemed proper to call your attention to the fact, that a portion of the funded debt is over due; a part bearing an interest of six per cent, and a part falling due the year 1850, as follows:

The amount of five per cent. funded debt over due, except bank charter loans, is.....	\$354,519 10
The amount of six per cent. funded debt over due is.....	1,752,335 06
The amount of five per cent. funded debt falling due on or before Dec. 1, 1850, is.....	999,311 15
The amount of unfunded debt, now due.....	65,104 88

Amount demandable at the treasury during the year.....\$3,191,170 19

#### Principal Towns in Indiana.

Chamberlain's Indiana Gazeteer. gives the following statistical information in regard to some of the principal towns in Indiana:—

Towns.	Business Houses.	Churches.	Laid out.	Pop.
Indianapolis,	121	17	1821	6,506
Madison,	not rep.	15	1808	7,000
New Albany	120	11	1813	7,000
Lafayette,	78	9	1825	7,000
Evansville,	not rep.	7	1816	5,000
Richmond,	"	9	1816	3,000
Terre Haute	70	9	1816	3,500
Fort Wayne, not rep.	"	8	—	5,000

The amount of taxes paid to the State in 1848, by the several counties in which these are located, upon the lands taxable in each, is as follows:

Indianapolis, Marion County.....	\$12,339 17
Madison, Jefferson ".....	11,092 64
New Albany, Floyd ".....	6,823 43
Lafayette, Tippecanoe ".....	9,643 68
Evansville, Vanderburg ".....	5,515 27
Richmond, Wayne ".....	17,690 01
Terre Haute, Vigo ".....	8,962 67
Fort Wayne, Allen ".....	5,720 87

#### Foreign Coal.

We have received from Washington the following official statement of the amount and value of coal imported into the United States during the year ending on the 30th of June, 1849:

From England.....tons..	63,079	value \$156,154
Scotland.....	1,469	2,721
Ireland.....	600	1,437
Brittish Am. Colonies.....	131,565	245,693
Other places.....	1,500	3,277

Total..... 198,213..... \$409,232

The following table shows the imports of Foreign coal into the United States, annually, from 1821 to the 1st July, 1849. The duty on foreign coal under the present tariff is 30 to 45 cents per ton, on board:

1821.....	22,122	1836.....	108,432
1822.....	34,523	1837.....	153,450
1823.....	30,433	1838.....	129,083
1824.....	7,228	1839.....	181,551
1825.....	25,645	1840.....	162,867
1826.....	35,665	1841.....	155,394
1827.....	40,257	1842.....	141,526
1828.....	32,302	1843.....	41,163
1829.....	45,393	1844.....	87,073
1830.....	58,136	1845.....	85,771
1831.....	36,508	1846.....	156,855
1832.....	72,978	1847.....	148,021
1833.....	92,432	1848.....	196,251
1834.....	71,626	1849.....	198,213
1835.....	49,969		

\* From 1st December, 1846, to 30th June, 1847

† For the year ending 30th June, 1848.

## Anthracite Coal Trade.

Table showing the quantity of Coal sent to Market annually, from its commencement, in 1820, to 1849, inclusive.

Years.	PREPARED FROM OFFICIAL DOCUMENTS.							Total Supply.	Increase & Decrease.
	Total Lehigh.	Total Schuylkill.	Lackawanna.	Pine Grove.	Lykens Valley.	Shamokin.	Wyoming.		
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1820.....	365							365	
1821.....	1,073							1,073	708 I
1822.....	2,441							2,440	1,161 I
1823.....	5,823							5,823	5,583 I
1824.....	9,541							9,541	3,718 I
1825.....	28,396	6,500						34,896	25,355 I
1826.....	31,280	16,767						48,047	13,151 I
1827.....	32,047	31,360						63,434	15,387 I
1828.....	30,232	47,284						77,516	14,082 I
1829.....	25,110	79,973	7,000					112,083	35,567 I
1830.....	41,750	89,984	42,700					174,734	62,351 I
1831.....	40,966	81,854	54,000					176,820	2,386 I
1832.....	75,000	209,271	84,500					368,771	191,951 I
1833.....	123,000	252,971	111,777					487,748	118,977 I
1834.....	106,244	226,692	43,700					376,636	72,112 D
1835.....	131,250	339,508	98,845	5,500				575,103	198,467 I
1836.....	146,522	432,045	104,500	9,978	5,439			698,484	123,381 I
1837.....	225,937	523,152	115,387	15,726	6,430			887,632	189,148 I
1838.....	214,211	433,875	76,321	16,665	6,005	4,104		746,181	141,451 D
1839.....	222,042	442,608	122,300	19,227	5,372	11,390		823,479	77,298 I
1840.....	225,591	452,291	149,470	19,463	5,302	15,298		867,045	43,566 I
1841.....	142,807*	585,542	192,270	15,306	6,176	22,154		964,255	97,210 I
1842.....	271,913	541,504	205,253	31,437	181	10,098	47,346	1,107,732	143,477 I
1843.....	267,125	677,313	227,505	22,879		9,870	57,740	1,262,532	154,800 I
1844.....	376,363	840,379	251,005	27,719		13,087	114,906	1,623,459	360,927 I
1845.....	430,993	1,076,068	266,072	31,208		10,135	178,401	2,002,877	379,418 I
1846.....	522,518	1,236,581	318,400	55,346		12,646	188,003	2,333,494	330,617 I
1847.....	643,568	1,572,794	388,200	61,233		14,904	289,898	2,970,597	637,103 I
1848.....	680,193	1,652,834	434,267	56,938	2,000	19,357	237,271	3,235,777	112,263 I
1849.....	800,987	1,605,626	454,240	78,299	250,000	49,658	258,080		159,030 I
	6,306,314	3,464,776	3,846,812	462,924	61,905	144,514	1,371,645	25,658,890	

\* Great Freshet which injured the Canal.

## Maryland.

We copy the following extracts from the Message of the Governor of this State, which give a lucid exposition of its financial affairs, and the condition of some of its public works:

Public debt on the 30th of September, 1849.....	\$16,164,813 44
Deduct—Sterling bonds held by the Baltimore and Ohio railroad company.....	\$3,200,000 00
Tobacco Loan.....	161,984 15
Interest bonds redeemed.....	260,118 38
Sinking fund.....	1,892,537 61
	5,514,640 14

Total public debt to be redeemed...\$10,650,173 30

Of this amount, \$318,621 07 of the funded interest is first to be paid. The reliable accruing revenue of last year exceeded \$1,200,000, and the taxes of that and former years in the hands of collectors, amounted to \$551,833 69. The experience of the treasury shows, that the difference between the revenue which accrues and that received for any one year, is usually supplied from the arrears of taxes due for former years; so true, indeed, is this, that receipts of the last fiscal year from that source, greatly exceeded the deficiency in the current revenue of the year. The receipts of the fiscal year ending on the 30th November, 1850, may, with certainty, be estimated at \$1,200,000, a sum less than the receipts of last year, by \$115,439 86. Adding to that amount the balance remaining on the first of December, 1849, \$484,892 96, the aggregate revenue of the year will be \$1,684,892 86. The disbursements for the same period will be, for ordinary expenses, \$200,000, for interest on the public debt, \$700,000, for redemption of one half of the residue of the funded interest \$369,310 53, making a total of \$1,269,310 53, and leaving a balance in the treasury at the close of the year of \$475,582 43.

A like estimate of receipts and disbursements for the succeeding year, allowing for a decrease of interest in proportion to the reduction of the principal of the debt, will find, on the first of December, 1851, the interest bonds entirely cancelled, a balance of \$484,830 53 in the treasury, and the public debt reduced to \$10,031,552 23. From that time forward, all surpluses in the treasury, become

applicable to the sinking fund. The manifest and constant improvement perceptible in the collection and payment of taxes, taken in connection with the certainty of increased revenue from internal improvement companies, for reasons which will be hereafter assigned, authorises the conclusion, that the receipts of each successive year, after the first of December, 1851, will not fall short of \$1,250,000.

Estimating the receipts for the year ending on the thirtieth of November, 1852, at \$1,250,000, and adding \$484,830 53, the balance of the preceding year, the aggregate revenue of the year will be \$1,734,830 53, from which, deducting disbursements for ordinary expenses, \$200,000, and for interest \$662,000 amounting in the whole to \$862,000, and there will remain in the treasury on the 1st of December, 1852, \$872,830 53. The same result, with an annual balance constantly increasing in amount will follow for all future years thereafter.

It will thus be seen that 375,000 at least may be safely appropriated to the annual payment of the main debt, while a balance will always remain on hand more than sufficient to cover any unforeseen contingency.

That amount, together with the increment of the sinking fund, regularly invested, will extinguish the entire public debt, in thirteen years from the first day of December, 1851. The calculation above submitted, for the sake of absolute certainty, is based upon the lowest possible amount of revenue which can be received, without reference to the yearly augmentation of balances in the treasury, and irrespective of any aid from the Chesapeake and Ohio canal; and, indeed, it will be found to be so far below the actual practical result, that I shall not be subjected to the imputation of temerity in venturing to predict the payment of the whole debt in less than thirteen years from this date. The estimate, however, proceeds upon the hypothesis that, in the mean time, no attempt will be successfully made to disturb the existing system of taxation, and that it will be left, in all its integrity to work out the relief which it is so certain to effect. The right of a political community to incur any pecuniary liability, binding upon the property of its citizens, implies the corresponding duty of providing the ways and means for its extinguishment, within a reasonable time. No one race of men is possessed of the moral power to entail upon its successors the

payment of a debt created for its own supposed advantage, or by reason of its own reckless improvidence. The subsisting debt of the state of Maryland has been contracted with the consent, or recognized as binding by the acts of the present generation, and whether the one or the other, upon the same generation is devolved the high moral obligation of relieving posterity of its burden. Neither wisdom, justice, good faith or the true interests of the people will be found to warrant a material departure from the system of revenue now in operation; but, on the contrary, every consideration of duty, economy and sound policy, exacts the most rigid adherence to its provisions, until the last dollar of the public obligations is redeemed and cancelled. At no previous period in the history of the State, has the maintenance of the public credit been of more vital importance to every class of the community, and more especially to those engaged in mercantile pursuits, than it is at this moment. The Baltimore and Ohio railroad, upon whose early completion depends so much of the commercial prosperity of the city of Baltimore, relies for its success almost exclusively upon the credit of the State. One half of the resources of its extension consists of State of Maryland bonds, nearly two-thirds of which are yet unnegotiated, while a large proportion of the other half must be raised upon the bonds of the company, issued in anticipation of its revenues. In whatever estimation the character of that corporation may be held, the consummation of the enterprise in which it is engaged, reposes in no small degree, upon the preservation of the public faith, not only unimpaired, but elevated above the reach of suspicion. A repeal or abandonment of any branch of the system, unless with an ulterior view to increased revenue, or for the removal of obstacles in the way of the administration of justice and the laws, will inevitably endanger the permanence of the whole code, inspire universal distrust, at home and abroad, prostrate all the great interests with which the pride and glory of the state are so intimately interwoven, and plunge her back again, in shame and dishonor, to the depths of insolvency, from which she has just been lifted. Allow the system to continue untouched, for, at most, fifteen years longer, and Maryland will present the anomalous and enviable spectacle of a commonwealth liberated from debt, supported without taxation, and possessed of an annual surplus revenue of from three to five hundred thousand dollars, to be distributed among the counties and the city of Baltimore in proportion to their former contributions to the treasury, or to be disposed of in any other way that the majority of the people may choose to direct.

I herewith transmit the reports of the President and managers of the Susquehanna and Tide Water canal companies for the years ending severally on the thirty-first of December, 1847 and the thirty-first of December, 1848. The same alacrity and zeal manifested by the corporations already referred to, in the maintenance of the public faith, has also, been exhibited by these companies in their contributions to the treasury; and if, at any time, exact punctuality has not been observed in the payment of interest when due, that circumstance is attributable rather to unavoidable embarrassments than to an indisposition on the part of the President and managers to comply strictly with their engagements.

The State's investments in these works are,	
For sterling loan as preferred creditor.....	\$1,000,000 00
Preferred bonds of the company for arrears on interest.....	192,500 00
Arrears of interest unfunded.....	70,390 00

Total .....\$1,262,890 01  
The amount annually due upon the sterling loan and funded interest, varies with the cost of exchange and remittance; for the fiscal year ending on the thirtieth of November, 1848, it was \$66,925 00, and for the year just closed \$66,550 00, making a total of \$133,475 00, while for the former year there was paid to the state \$40,000, and for the latter \$101,550, equal together to \$141,550, being an excess over the interest due for the two years of \$8,075 00. This balance has been carried to the credit of the arrears of unfunded interest, thereby reducing its amount from \$70,390 01, as above stat-



ed, to \$62,315'01. A tabular statement contained in the last annual report, shows a gradual increase of revenue within ten years \$41,558 31, in 1840, to \$138,013 66, in 1848, a gain, in receipts, in favor of the latter year of \$96,455 29. In the same report it is remarked, "that the average increase of each year over the preceding, has been such, that at no greater rate of progress, the company must in a few years pay the current interest upon its debt, and may look forward to an entire extrication from its embarrassments." The President of the companies in a communication of the date of the fifteenth of October last, in reply to a letter from me, of an earlier date, says, "In estimating the resources of the state for the ensuing year, I think you may assume with certainty that the state will receive punctually the current interest from these companies;" and further, "whilst, therefore, I am loth to promise anything, the failure to perform which, though without our control, would look like a breach of faith, I can express to you the expectations honestly entertained, that we shall be able next year, besides the payment of our current interest, to make a decided impression upon the arrears." The Susquehanna and Tide Water canal companies, may, therefore, I think, be confidently relied upon to continue the punctual payment of the annual interest due from them to the Treasury, and in the absence of any unforeseen casualty, not only to discharge the unfunded arrears of interest, but to apply a portion of their earnings towards the redemption of the debt incurred, for their benefit, by the state.

The two last named reports of the Chesapeake and Ohio canal company are herewith transmitted. I regret to be obliged to communicate to you the unwelcome intelligence that, notwithstanding the most confident assurances heretofore given, the canal has not yet reached its destined terminus at the town of Cumberland; nor am I in possession of any reliable information as to the period of time, at which its final completion may be certainly expected. The interest of the state in this corporation consists of

Investments as unpreferred stockholder.....	\$622,000 00
Investments as preferred creditor and stockholder.....	6,572,666 66
Preferred claim, for interest paid....	3,645,943 75

Total.....\$10,840,610 41

From the above statement it will appear that the state has embarked her capital and credit to an infinitely greater extent in this, than in any other like work of internal improvement; and if the success which has hitherto attended upon its management, is to be regarded as the best indication of its future utility, there is reason to fear that, without an essential change of system, the hopes and anticipations which the people of Maryland have been taught to cherish in reference to the fruits of this enterprise, if not doomed to perpetual disappointment, are at least liable to be indefinitely deferred.

A review of the past history and progress of this work, in its transactions with the state, may serve to admonish those who have the largest stake in its success, of the entire inefficiency of the existing system of control, and of the consequent necessity of devising some other plan, for the more effectual protection of the public interests. The Chesapeake and Ohio canal company was incorporated by the Legislature of Virginia, in the year 1824, with a capital of six millions of dollars, and its object was the construction of a navigable canal, from the tide water in the District of Columbia to the Ohio river at Pittsburgh. At the December session, 1824, of the Legislature of Maryland, the Virginia charter was re-enacted and confirmed, and it was also subsequently adopted by the state of Pennsylvania. Although the cost of the canal from Georgetown to Cumberland, as ascertained by a distinguished engineer, then in the service of the government, was estimated at more than nine millions of dollars, it was not found difficult to procure estimates from other quarters deemed reliable, reducing the cost of construction between these points, to four millions five hundred thousand dollars. To this unfortunate commencement may be traced that fatal system of false, if not fraudulent estimates and prodigal expenditures, by which the state of Maryland

was finally plunged into a debt on account of this work, the principal of which now exceeds seven millions of dollars. To the capital stock of the company there was subscribed and paid in by the General Government \$99,990 00, by the state of Virginia \$250,000, by the city of Washington \$1,600,000, by Georgetown and Alexandria \$500,000, by the state of Maryland \$500,000, and by private subscriptions \$457,518 36, making a total of \$3,707,508 36, when on the 4th day of July, 1828, the work was commenced with an ostentation which was thought to befit the magnitude of the undertaking. But scarcely had one hundred and four, out of the one hundred and eighty four miles (the distance between Georgetown and Cumberland) been completed, when the year 1834 was called upon to witness the exhaustion of the Company's means, the fallacy of the revised estimates and the consequent suspension of the work itself. Deserted by the United States, the state of Virginia and the district cities, the whole burden of its completion was now thrown upon the state of Maryland, and no means were left unassayed by the agents of the country to convince the legislature that, while the most unlimited profits were to accrue to the state by the prosecution of the work to Cumberland, the additional sum of two millions of dollars would prove amply sufficient, to carry it to that town before the expiration of eighteen months, or at farthest, two years. A committee, at the head of which was the then president of the canal company "appointed to prepare an estimate of the probable cost, and the time required for the completion of the canal." In their report of the date of the 28th of January, 1835, submitted to the Legislature confidently state that the 78 miles below Cumberland, remaining to be placed upon contract, will require two millions," and, "as to the time which should be allowed for the completion of the eastern section, past experience assures the friends of the canal, that if the entire line of 78 miles were placed under contract, eighteen months or two years, at most, would suffice for that object." Deluded by these representations, the General Assembly, at the December session, 1834, loaned to the company two million State of Maryland six per cent. bonds, reserving a right to convert the amount into stock, upon the completion of the canal to Cumberland.

#### Comparative Expenses of Railroads.

I have been looking over the annual reports of the railroads in this commonwealth for the years 1846, '47, and '48, for the purpose of contrasting the expenses of wood and stone (sleeper) roads. I forward you for publication the result of my comparison in reference to the Providence, Worcester and Lowell roads, which were opened about the same time, the two former having wooden, and the latter stone sleepers. The statement embraces the three years above mentioned:

REPAIRS, RENEWALS OF IRON, &c.				
	Providence, 16,318	14,279	23,785	Total 3 Av. p
	1846.	1847.	1848.	years. mile.
Providence..	34,946	60,962	44,679	140,587 4 45
Worcester....	36,160	47,072	49,391	132,623 8 34
Lowell.....	36,160	47,072	49,391	132,623 8 34
REPAIRS OF STATION BUILDINGS.				
Providence..	3,633	2,762	2,077	8,472 2 824
Worcester..	3,986	3,916	3,186	11,088 3 696
Lowell.....	26,587	26,524	16,649	69,760 23 253
NEW ENGINES AND CARS FOR DEPRECIATION.				
Providence..	13,000	13,000	825	26,825 8 962
Worcester..	10,125	10,125	10,125	30,375 10 125
Lowell.....	27,507	22,288	30,170	79,965 26 655
RECAPITULATION.				
	Road-way.	Sta-tions.	Engines & cars.	Total 3 Mls. years. track.
Providence..	54,382	8,472	26,825	89,679 63
Worcester..	140,587	11,088	30,375	182,050 103
Lowell.....	132,623	69,760	79,965	382,348 53
GENERAL RESULT.				
For 3 ys. on Providence, of 63 miles,	\$1,423	per m.		
" Worcester, 103 "	1,767	"		
" Lowell 53 "	5,227	"		

It will be seen by the above statement that in the items mentioned, the expenses during the three years, of the Providence and Worcester roads together, (embracing 166 miles of track) were more than 11,000 dollars less than those of the Lowell road (of 53 miles of track.)

#### New York. CANAL DEBT.

The amount of the canal debt chargeable upon the sinking fund created by sec. 1, art. 7 of the constitution, was on the 30th Sept., 1849, as follows:

Erie canal enlargement.....	\$8,127,386 94
Chemung canal.....	509,452 34
Crooked Lake canal.....	120,000 00
Chenango canal.....	51,362 00
Black River canal.....	1,208,011 35
Genesee Valley canal.....	3,084,623 38
Oneida Lake canal.....	50,000 00
Oneida river improvement.....	59,843 56
To provide for deficiencies under art. 7 of the constitution.....	3,153,844 10

Canal debt paying interest.....16,364,523 67

To the above amount should be added the new debt of \$50,000, created in pursuance of the act providing for extraordinary repairs and improvements, passed April 5th, 1849, on which the interest being \$3,000 per annum, must be provided for from other sources than the canal revenues. It is for the legislature to determine whether this interest shall be supplied from the revenues of the general fund, or by setting apart a sufficient portion of the moneys received from premiums on loans.

The principal of the canal debt was diminished during the past fiscal year, by payments from the canal sinking fund, \$310,375 24, and increased 50,000 by the new loan above referred to, making the actual reduction as follows:

Principal of debt, Sept. 30, 1848, paying interest.....	\$16,674,898 91
Principal of debt, Sept. 30, 1849, paying interest.....	16,414,523 67

Diminution.....260,375 24

The aggregate amount of the canal debt, including the new loan of \$50,000 above referred to, was on the 30th of Sept., 1849, \$16,414,523 67.

#### GENERAL FUND DEBT SINKING FUND.

Amount received into the treasury....	\$357,000 00
Deficiency in the fund on the 30th September, 1848.....	1,008 97
Amount of payments from the treasury (see statement B).....	436,442 00
Am't transferred to the general fund revenue, for one year's interest on \$117,675 63.....	7,060 53
	344,511 50

Surplus of the sinking fund 30th Sept. 1849.....12,488 50

Add to this interest on \$30,000, of new debt created for the erection of the New York arsenal, to be refunded from the general fund revenue.....1,026 66

And it shows an actual surplus of....13,515 16

To this fund belongs a certificate of stock issued on account of the bank fund, redeemable 1st February, 1856, and held by the treasurer in trust for said fund: it being the amount appropriated from the canal revenues to this fund from the 1st June to 30th Sept., 1846, for which the commissioners of the canal fund assigned to the treasurer, said stock in lieu of the payment of the money into the treasury for that period.....\$116,666 66

In order to meet the demands upon this fund, there have been advances made from the treasury, and there remained a balance due the general fund revenue, on the 30th September, 1849, of.....104,178 16

Leaving the amount of the fund on the 30th Sept., 1849.....12,488 50

For the purpose of adjusting this matter between the sinking fund and the general fund revenue accounts, it has been suggested in former reports from this office, that the comptroller be authorized to invest out of moneys in the treasury belonging to the specific funds, a sum equal to that of the bank fund stock, and that said stock be transferred to him in trust for said funds. This stock bears six per cent. interest, and as little or no doubt exists as to the

sufficiency of the contributions by the banks to meet its redemption, it would be a safe investment for these funds.

#### CANAL DEBT SINKING FUND.

<b>Received.</b>	
Balance on hand, 30th Sept., 1848....	\$153,944 40
Transferred from the fund to redeem Erie and Champlain canal stock....	160 00
Transferred from the fund to redeem Chenango canal stock.....	600 00
Proceeds of loan to supply deficiencies—amount of principal.....	1,739,024 73
Received for interest on investments..	7,774 28
Transferred from the revenues of the State canals, under art. 7, sec. 1, of the constitution.....	1,300 000 00
<b>Total receipts.....</b>	<b>3,201,503 44</b>
<b>Paid.</b>	
For the redemption of 5's of 1845.....	600 00
" " 7's of 1848.....	37,391 00
" " 5's of 1849.....	71,886 00
" " 7's of 1849.....	1,987,452 00
For accrued interest on investments..	2,101 38
For expenses of transfer office, viz:	
To the Manhattan company.....	1,250
To Walter Mead, agent.....	750
For account books, & engraving plates, etc.....	597
	2,597 00
For interest on the canal debt.....	898,599 05
<b>Total payments.....</b>	<b>3,000,626 43</b>
<b>Balance on hand 30th September, 1849</b>	<b>200,877 01</b>
	3,201,503 44

The above balance is applicable as follows, viz:

To redeem 6's of 1837 outstanding.....	160 00
" 7's of 1849.....	600 00
" 7's of 1849.....	74,948 00
" 5's of 1849.....	15,114 00

ing no interest.....90,822 00  
 For the fiscal year 1849-50.....110,057 01  
**\$200,877 01**

#### AMERICAN RAILROAD JOURNAL.

Saturday, January 12, 1850.

#### Maine.

**Railroad Meeting at Hiram Bridge.**—We are informed that the meeting at Hiram Bridge on Tuesday last, in reference to the contemplated railroad from the State line on Saco river, to some point on the York and Cumberland railroad, was large and the proceedings highly interesting. Peleg Wadsworth of Hiram, was chosen chairman, and Messrs Barrows of Fryburg and Usher of Hollis, secretaries. Wm. H. Noble, Esq., the engineer, made a favorable report, and the meeting was addressed by Messrs. F. O. J. Smith, of Westbrook, McArthur, of Limington, Cowan, of Saco, and others. Committees were selected from the several towns to confer with citizens on the line in reference to the further prosecution of the matter. A vote was taken to publish the report, and an account of the proceedings of the meeting, which we shall endeavor to lay before our readers as soon as practicable.

#### Maine.

**York and Cumberland Railroad.**—The stockholders of this company held a meeting at Alfred, on the 3d inst., to adopt measures for completing the western termination of the road. There was a large attendance, and an enthusiastic determination was evinced to put the road through speedily. The stockholders were also satisfied that, if done at all, it must be done by home effort, and without the aid of Boston capital.

F. O. J. Smith, Esq., on behalf of the directors, guaranteed that, if a subscription of \$550,000 could

be secured, including the amount already taken, the road should be completed in 18 months.

Committees were appointed to apportion the amount each town should raise, as above suggested. The following amounts were reported and accepted:

Hollis \$30,000, Waterboro' 20,000, Lyman 10,000, Alfred 40,000, Sanford 30,000, North Berwick 15,000, S. Berwick 15,000, Berwick 10,000, Lebanon 5,000, Shaleigh 5,000, Acton 5,000, Limerick 10,000, Newfield 5,000, Limington 15,000, Cornish 2,000, Parsonsfield 10,000, Buxton 10,000, Baldwin 5,000, Standish 5,000, Gorham 50,000, Westbrook 70,000, Portland 150,000, other towns 33,000.

The meeting adjourned to assemble at the same place February 6th, at 10 o'clock, a. m., to receive the reports of the gentlemen to whom the obtaining of the above subscriptions is committed. There are also to be meetings of the friends of the enterprise at the Meeting House at Buxton on Lower Corner, on Thursday, the 17th inst. at 10 o'clock a. m., and at Spring vale, in Sanford, on Wednesday the 23d inst. at 10 o'clock a. m.

A more painful duty has seldom devolved on us, either as a public journalist or private individual, than that of announcing to our readers the melancholy death of John Howard Kyan, Esq. Mr. Kyan was found dead in his boarding house in this city on the 5th instant: a coroner's inquest held in the course of that day, found that his death had been caused by apoplexy. On the 7th instant he was followed to the grave by a number of friends who met him here, amongst whom were J. W. Francis, an eminent physician of this city, Alfred W. Craven, Chief Engineer of the Croton Aqueduct, I. W. Gibbons, an English gentleman staying in this city, Jas. K. Casey, an English gentleman resident here, H. V. Poor Esq., Editor of the Railroad Journal, Walter H. Ferrier and M. Butt Hewson, Civil Engineers, etc.

Mr. Kyan was a native of Ireland, having been born in the county of Wicklaw in that country, where he was the owner, amongst other real estate of the royalties, of some very valuable mines.—The kyanizing of timber was invented by Mr. Kyan, and has made his name familiar to most of the practical constructors both here & in Europe. His treatise on the 'Elements of Light,' full of new and bold ideas, marks Mr. Kyan as an original investigator of depth and compass. He was a man of marked intelligence, and of an energy of character not to be deterred from even coming here in the pursuit of business at the advanced age of 75 years. He leaves a wife and 9 sons and daughters to be shocked by the news of their sad bereavement.

Few men were susceptible of warmer friendships than the late John Howard Kyan. His hair was gray; but his heart was green: a patriarch in years, he was a boy in affections. With a portly commanding person, and fresh benevolent countenance, he was truly a fine specimen of the Irish 'gentleman.'

Courty in his manners and bearing, intelligent in his views, warm in his feelings, gracefully buoyant in his spirits he was at once venerated and loved. Bitter, bitter must be the loss of a man so esteemed by friends who knew him for but a short time, to those who stood towards him in the more tender relation of wife, son daughter. He was honored and distinguished in his life, and now that he has passed from amongst us, the peace of God rests upon his spirit.

#### Georgia.

##### Central Railroad and Banking Co.

We have the report of the President and Directors of this road for the year ending November 30, 1849.

The earnings for the year ending as above have been.....\$668,383 91  
 The ordinary working expenses and maintenance of road and machinery amount to the sum of...\$333,193 75  
 Extraordinary expenses.. 4,435 12

337,628 87

Making the net earnings for the year. 330,755 04

The whole cash receipts during the year from road and bank, are as follows:

From road earnings prior to 1st Dec. 1848.....\$28,274 92  
 From road earnings since that date... 572,368 53  
 600,643 45  
 From earnings of bank..... 26,489 82  
 627,133 27

And those cash receipts have been disposed of as follows, to wit:

Road expenses as above...337,628 82  
 Bank expenses..... 6,472 00  
 Interest on bonds..... 7,612 92  
 June and December dividends..... 189,366 00  
 541,079 79  
 86,053 48

Amount paid out for cars..27,200 00  
 " rebuilding 17 miles of the road.....20,168 14  
 47,368 19

Leaving a surplus of..... 38,685 39  
 This has been carried to the reserve fund which now amounts to \$70,918 97.

Since the last annual report there have been purchased 6508 tons of the heavy rail, of the T pattern, for relaying the road. About 4500 tons have already arrived. There has been paid on account of rails and connecting plates, the sum of \$77,804, and the company will be called on soon for about the sum of \$120,000, and in the course of the ensuing six months for 110,000. There has been sold, of the guaranteed 8 per cent. stock, last authorised by the stockholders to be issued, \$114,900, and the books are again open for the sale of an additional sum of \$150,000. The payments for iron and rebuilding the road have been, and will be thus secured.

About 17 miles of new heavy rails have been laid, and after the first day of January next the work of relaying will go on much more rapidly than during the past year. So soon as the new iron is laid down, the annual working expenses will, comparatively, be very considerably diminished. The board confidently expect that at least 70 miles of the road will be renewed and laid with the heavy bar, in the course of the next year.

The road is stated to be in excellent repair at this time, and its condition is constantly improving. On the first day of January last, the system of road repairs was changed from a contract system to a working by negroes hired by the company, and the board state that the repairs under the new system have been more thorough. They do not doubt that the new plan will be more effective, as well as economical. The company anticipate large additions to its business from the opening of the South Western and Burke County railroads; the object of the former being to open a railway communica-



tion between Savannah and the Chattahoochee river, and the latter to connect the Central railroad with Augusta. Fifty miles of the former will be opened within the year. The central railroad subscribed 250,000 dollars to the stock of the South Western railroad, for the purpose of aiding a work so important to its interest, and to that of Savannah. It is believed that this subscription will prove a profitable investment of capital, in addition to the other objects that induced it.

The completion of the several roads now in progress in this State will open to almost every portion of it means of easy access to market. Cheapness of transportation is as much an element in the wealth of an agricultural section of the country, as fertility of soil. The latter may be entirely unavailable without the former. The time is not far distant when every planter in Georgia will be within convenient distance of a railroad, and consequently of a market at all seasons of the year.

At the present time, most of the cotton grown in the Southern States must be forwarded to market at certain seasons of the year, when the rivers are navigable. This necessity throws the whole crop upon the market at once, and the supply at such times being much greater than the demand, the price falls in consequence. After the crop reaches tide water, the planter can better afford to sell at reduced price than pay the various charges to which it is necessarily subject. The construction of a railroad by enabling planters to forward their cotton whenever there is a remunerative demand, will, to a certain extent, prevent the supply exceeding the demand. In a word, it places the planter in the position of making his own terms, and takes this privilege from the speculator and consumer who has heretofore enjoyed it.

#### STATEMENT SHOWING THE RESOURCES OF THE COMPANY.

Railroad appurtenances.....	\$2,635,650 88
Notes and bills discounted.....	264,811 04
Bills receivable.....	40,232 30
Bills on North.....	109,869 32
Bonds City of Savannah.....	11,000 00
Stock—Bank state Georgia.....	20,000 00
“ S.W. Railroad Co. Savannah and N. York steam pack-ets.....	165,000 00
“ Savannah and N. York steam pack-ets.....	51,000 00
Banking houses and lots.....	17,896 82
Real estate taken for debt.....	915 90
Due by other Banks, other company and ag'ts.....	97,414 05
Washington and N. O. Tel. Co.....	318 40
Protests.....	95 75
Balance betw'n principal B'k and late agency.....	15 18
Specie.....	39,290 40
Cash balance due from northern banks.....	92,521 61
Notes of other banks.....	7,342 00
	139,154 01
	\$3,553,373 65

#### LIABILITIES.

Capital paid in.....	\$2,694,717 50
Unpaid instalments.....	1,182 50
Circulation.....	190,293 00
Bonds—8 per cent.....	207 00
Bonds—7 per cent.....	172,600 00
Suspense account.....	3,500 00
South Western railroad co.....	53,418 63

Brooks and Barden.....	1,966 27
Due to other banks.....	55,387 58
Due to agent.....	92
Unclaimed Dividends.....	16,792 26
Individual deposits.....	94,808 02
Dividend declared this day*.....	97,581 00
Balance being reserved fund.....	70,918 97

\$3,553,373 65

\* Equal to 3½ per cent. semi-annual.

#### Virginia.

*Gratifying Intelligence.*—We have the liveliest satisfaction in announcing that the board of public works on Tuesday last, subscribed, on the part of the State, for the full amount, as authorised by the act as it now stands, to the stock of the Virginia and Tennessee railroad. The sum now subscribed is \$900,000, but the state is bound to the amount of 1,636,000 dollars. We have not less pleasure in announcing that the Governor has appointed John M. Preston, Esq., of Abingdon, as the proxy to represent the State. The southwest can now rest assured that its interests will be zealously guarded by her trusted son, and we speak what we know, when we say that no appointment could have been made more entirely acceptable to our citizens, and to the board of Directors of the company, than that of Mr. Preston. His intelligence, high character, and consistent devotion to the cause, afford abundant guaranty that he will discharge his duty with exclusive reference to the best interests of the great work.—*Lynchburg Virginian.*

*South Side Railroad.*—It will be seen from the following paragraph, which we find in the Petersburg Intelligencer, that a portion of the South Side railroad is already under contract, and that books for subscription to the stock of the Petersburg and Lynchburg railroad are to be opened on the 15th instant. We repeat our settled conviction, that by the time our road is finished to the Tennessee line Lynchburgh will be connected with tide water by perhaps more than one railroad, whilst the improvements in Tennessee will, within the same period, put us in communication with the Mississippi. We hazard the prediction that before seven years, at farthest, roll round, passengers will be taken on a continuous railway from Petersburg to Memphis:—

The common Hall having given authority to do so, several of the contracts for grading the South Side railroad were let out on Saturday. Such is the great facility of the route, that the grading will be finished this year; allowed to settle next winter; and, in the spring of 1851, the work of laying the iron rails will be commenced. Contracts for other sections of the road are still open.

The commissioners to receive subscriptions to the stock of the Petersburg and Lynchburg railroad have determined to open books of subscription on the 15th of January, and have requested sub-commissioners at Farmville; at the new store in Buckingham; at Buckingham Court House; and at Appomattox Court House, to open books at as early a date as they may deem it expedient. So the ball is now fairly started for Lynchburg and will roll to that point, as speedily as a proper construction of the work will allow.—*Id.*

The stockholders of the Alexandria and Gordonsville railroad have decided upon the route of their road. It will pass through Culpepper and Orange Ct. House. The work will be put under contract forthwith.—*Id.*

STATEMENT, showing the areas of the several Land States and Territories, the amount of land disposed of by sale and otherwise, and amount unsold and undisposed of on the 30th Sept., 1849.

STATES AND Territories.	Areas of the States and Territories. Sq. miles.	Surveyed up to Sept. 30, 1849.	Unsurveyed on Sept. 30, 1849.	Offered for sale up to Sept. 30, 1849.	Acres sold up to Sept. 30, 1849.	Don't and grants for schools, etc.	Grants for internal improvements.	Grants to individuals & companies.	Grants for seats gov't & public build.	Grants for military services.	Reserved for the benefit of Indians.	Confirmed private claims.	Total acres unsold and undisposed of.
Ohio.....	39,964	25,576,960	16,770,984	16,770,984	19,541,302 84	727,598	1,181,136 47	32,141 24	2,500	1,476,117 96	126,330 73	96,489 80	745,751 96
Indiana.....	33,809	21,637,760	21,448,658	21,359,707	15,685,836 09	673,357	1,609,861 61	843 44	4,564	454,636 61	126,220 73	179,880 53	2,731,551 96
Illinois.....	55,405	35,459,200	35,440,381	35,397,921	15,252,541 04	1,001,795	500,000 00	954 64	2,560	4,281,520 30	121,629	188,901 61	14,000,308 72
Missouri.....	67,380	43,123,200	42,427,322	39,617,587	9,863,991 80	1,222,179	500,000 00	1,921 53	2,560	887,173 20	22,557 61	1,362,455 10	29,216,173 29
Alabama.....	50,732	37,462,080	31,993,813	28,224,757	10,933,132 15	925,814	500,000 00	1,981 53	1,620	60,000 00	2,777,612 04	2,092,903 91	22,854,432 82
Mississippi.....	47,151	29,175,522	19,020,636	10,695,214	3,276,056 29	832,124	500,000 00	4,080 00	1,290	151,860 00	109,300 83	126,711 25	24,854,963 11
Louisiana.....	46,431	38,995,520	29,334,697	27,473,784	9,116,910 84	1,113,477	500,000 00	4,080 00	13,200	100,796 97	100,796 97	118,451 12	27,402,991 86
Michigan.....	56,243	35,406,720	33,201,426	32,181,421	3,048,548 03	932,540	500,000 00	1,393 66 25	10,600	1,206,045 31	46,080	46,080	31,810,576 48
Arkansas.....	52,198	37,931,520	20,507,534	17,433,986	1,953,237 99	954,583	500,000 00	1,743 66 11	6,240	4,040 00	227 49	1,939,789 00	27,402,991 86
Florida.....	59,268	32,584,960	16,578,869	15,125,981	2,439,747 24	951,224	500,000 00	18,226 86	3,840	1,028,315 05	1,302,058 17	46,080	27,402,991 86
Iowa.....	50,914	34,511,360	14,977,955	14,323,016	4,785,533 15	1,004,728	500,000 00	5,705 82	6,400	1,302,058 17	137,894 27	36,880 99	27,402,991 86
Wisconsin.....	53,924	35,130,000	23,827,773	23,827,773	4,785,533 15	1,004,728	500,000 00	5,705 82	6,400	1,302,058 17	137,894 27	36,880 99	27,402,991 86
Minnesota.....	83,000	53,130,000	23,827,773	23,827,773	4,785,533 15	1,004,728	500,000 00	5,705 82	6,400	1,302,058 17	137,894 27	36,880 99	27,402,991 86
Northwest.....	587,564	376,040,960	376,040,960	376,040,960	4,785,533 15	1,004,728	500,000 00	5,705 82	6,400	1,302,058 17	137,894 27	36,880 99	27,402,991 86
Oregon.....	341,453	218,536,320	218,536,320	218,536,320	4,785,533 15	1,004,728	500,000 00	5,705 82	6,400	1,302,058 17	137,894 27	36,880 99	27,402,991 86
Nebraska.....	136,700	87,488,000	87,488,000	87,488,000	4,785,533 15	1,004,728	500,000 00	5,705 82	6,400	1,302,058 17	137,894 27	36,880 99	27,402,991 86
Nebraska.....	136,700	87,488,000	87,488,000	87,488,000	4,785,533 15	1,004,728	500,000 00	5,705 82	6,400	1,302,058 17	137,894 27	36,880 99	27,402,991 86
Indian.....	187,171	119,789,440	119,789,440	119,789,440	4,785,533 15	1,004,728	500,000 00	5,705 82	6,400	1,302,058 17	137,894 27	36,880 99	27,402,991 86
Total.....	1,949,317	1,247,552,362 312	1,116,014,925,805	715,291,970,979	101,386,894 07	11,199,973	8,474,475 30	1,971,339 68	50,860	10,987,445 83	422,325	3,400,725 53	14,973,903 21



## NOTES.

\* Corrected to latest dates, and includes Chickasaw lands. † This amount will be increased by decision of Secretary of Treasury, of March 2, 1849. ‡ Areas as shown by plats.—N. Y. Tribune.

## COMMERCE OF BOSTON.

The Courier contains a table of the arrivals at Boston for the year 1849, foreign and coastwise.—Of the foreign arrivals (3114) 2076 were British, chiefly from the British provinces. Sixty-one vessels arrived from ports east of the Cape of Good Hope, 123 from Liverpool, 305 from other European ports, 90 from various South American ports, 380 from various West India ports, 291 from Picton, 126 from St. John, 84 from Halifax, and the remainder from other ports of the British provinces. Of the coastwise arrivals, (6100) 7 were from Galveston, 241 from New Orleans, 67 from Mobile, 21 from Jacksonville, 40 from Apalachicola, 68 from Savannah, 64 from Charleston, 36 Washington, 93 Wilmington, N. C., 62 from Fredericksburg, 63 from Tangier, 37 from Alexandria, 272 from Baltimore, 1351 from Philadelphia, 55 from Rondout, 216 Albany, 559 New York, 38 Hartford, 242 Bangor, 221 Portland, 163 Bath, 126 Calais, 108 Ellsworth, 104 Thomaston, and 1025 from other ports east of Portland. This table does not include several thousand coasters which annually arrive at this port, loaded with fish, lumber, wood, etc. Probably from 14,000 to 15,000 vessels annually enter the port of Boston.

## STATEMENT OF GOLD BULLION imported from California since June 1, 1849.—Coinage of Gold Bullion.

In Friday's Journal of Commerce I gave a statement of the amount of gold bullion imported into New York in six vessels, since July 1, 1849, viz:—  
\$2,705,162 66  
I now give a statement of five others as follows:

June 11. By U.S. store ship Lexington.....	270,000 00
" 23. By steamer Crescent City.....	490,314 00
Aug. 22. By U.S. ship Dale.....	65,000 00
" 22. By steamer Falcon.....	336,180 00
Sep. 9. By " Great Western.....	197,080 00

Total.....\$3,964,006 00  
In this estimate there is one item in the imports of the Empire City, Sept. 13, in which the sum of two hundred thousand dollars is stated as brought by passengers. This deducted from the above, would leave to consignees.....\$3,764,006 66

Taking Mr. Aspinwall's estimate that as much gold bullion has been brought to New York by passengers which is not entered on the manifests, as that which is entered, we have as the gross amount of imports from June 1 to Dec. 31, 1849.....\$7,528,013 32

From July 1 to Dec. 31, 1849, the United States mint in Philadelphia have coined for Messrs. Howland & Aspinwall, of New York, from California, gold bullion, \$539,891 83.—*Jour. of Com.*

## Massachusetts Stock.

## DIVIDENDS TO BE PAID IN JANUARY.

We have given in our paper for the last week or two the various dividends which have been declared by the different railroad and manufacturing companies, and we have prepared below, in the following table, the amount of the same with the additions of the interest to be paid on various city and state script, and the interest on various railroad bonds, and some dividends which we have not before published. It will be seen by the table that there is to be paid out in various sums over two millions one hundred thousand dollars, which will, of course be a very acceptable new year's present to the receivers, as well as afford some relief to the money market. There are some other dividends

which will yet be declared before next week, and are consequently not included in this table:

## RAILROAD STOCKS.

	Capital.	Div.	Am't.
Western railroad.....	\$5,150,000	4	206,000
Fitchburg ".....	2,650,000	4	106,000
" " int on new stock.....			28,600
Boston and Lowell.....	1,830,000	4	73,200
Boston and Providence.....	3,160,000	3	94,800
Boston and Worcester.....	4,500,000	3	135,000
Taunton Branch.....	250,000	4	10,000
Pittsfield and North Adams.....	450,000	3	13,500
Dorchester and Milton.....	130,000	3	3,900
Eastern Massachusetts.....	2,850,000	4	114,000
Eastern, N. H.....	492,500	4	19,700
Boston and Maine.....	3,556,000	5 1/2	195,580
" " int. on new stock.....			3,750
Portland, Saco and Portsmouth.....	1,200,000	3	36,000
			1,040,030

## INTEREST ON BONDS

Old Colony.....	\$8,220
Dorchester and Milton.....	4,000
Michigan Central.....	28,000
Cheshire.....	17,500
Vermont Central.....	9,000
Vermont and Massachusetts.....	16,000
Albany [W. R.].....	30,000
Western Railroad Sinking Fund.....	50,000
	\$162,220

## MANUFACTURING STOCKS.

Chicopee.....	700,000	3	21,000
Salmon Falls.....	500,000	3	15,000
Cabot.....	500,000	4	20,000
Nashua.....	1,000,000	4	40,000
Jackson.....	480,000	4	19,200
Stark Mills.....	1,000,000	2 1/2	25,000
Monadnock.....	120,000	4	4,800
Lowell.....on 1900 shares.....	\$20		38,000
Cocheco.....on 2000 shares.....	\$26		52,000
Manchester Print Works.....	1,200,000	4	48,000
New England Worsted.....	480,000	5	22,000
			\$305,000

## LAKE COMMERCE.

Collections at Custom Houses from Chicago to Ogdensburg, up to December 1st, 1849:	
District of Chicago.....	\$4,349 79
" Cape Vincent.....	2,778 58
" Sandusky and Cleveland.....	1,096 60
" Detroit.....	7,846 60
" Oswegatchie and Ogdensburg.....	5,802 05
" S. Harbor.....	4,100 00
" Buffalo and Erie.....	38,280 49
" Genesee and Rochester.....	13,906 03
	\$78,189 14

Collection from the port of Oswego from the 1st of March to 31st Dec., 1849... 90,542 50  
Collected above brought down..... 78,189 14

An excess of.....\$12,353 36  
collected at Oswego beyond all other ports (American) on this chain of lakes.

W. HARMON, Dep. Collector.

Custom House, Oswego, Jan. 1, 1850.

## Indiana.

*New Albany and Salem Railroad.*—The New Albany Bulletin gives the following gratifying statement of the progress of this work:

We mentioned in the fall that the work had been let from Salem to White River, which made sixty five miles in all from New Albany. The work on that part of the road being light, it has been done with surprising promptness—one half of the route from Salem to Orleans being now ready for the superstructure.

We understand that a contract was concluded on Wednesday last with Messrs. Doolittle & Chamberlain for all the grading, masonry, bridging, etc. of all the line from the east fork of White river to Gosport, a distance of about 50 miles. This contract includes the bridging of the two White rivers

and amounts in all to about \$320,000. They are required to finish the work to Bedford by the 1st of January, 1851, to Bloomington by the 1st of October, 1851, and to Gosport by the first of July, 1852.

We have now one hundred and fifteen miles of railroad under contract. That which has just been let is the most heavy and difficult portion of the whole work.

The means of the company are ample to finish and furnish the road to Orleans, 56 miles, and to grade and prepare for the iron the remainder of the road to Gosport.

We have no hesitation in saying that, within three years, the road will be extended and completed to Lafayette, with a branch running to Indianapolis. The books will be opened in the spring to these extension.

## Foreign Commerce of the U. S.

We extract from the New York Courier and Enquirer the following condensed statement of the commerce and navigation of the United States with foreign countries, for the fiscal year ending the 30th June, 1849. It is taken from the official report of the Register of the Treasury, laid before the Senate on the 26th ult. It contains matters of great interest to all classes of our citizens, respecting the increased trade of our country, and will well repay a careful examination.

Statement of the total value of goods, wares and merchandise, imported into the United States in American and foreign vessels, during the year ending 30th of June, 1849.

	In American vessels.	In foreign vessels.	Total.
Paying duties.....	\$103,293,220	22,186,554	125,479,774
Free from ".....	17,088,932	5,288,733	22,377,665

Total value...\$120,382,152 27,475,287 147,857,439  
Statement of the total commerce of the U. States, from 1st July, 1848, to 30th June, 1849.

## Value of Exports, Domestic Produce.

In American vessels.....	\$91,363,303
In foreign vessels.....	41,304,647
Total.....	132,666,955

## Foreign Produce.

In American vessels.....	9,169,815
In foreign vessels.....	3,919,050

Total.....13,088,865

Total American and foreign produce...145,755,820

## Value of Imports.

In American vessels.....	120,382,152
In foreign vessels.....	27,475,287
Total.....	147,857,439

Summary statement of the value of domestic exports during the year ending June 30, 1849.

## THE SEA.

Dried fish or cod fisheries.....	419,092
Pickled fish, or river fisheries.....	93,085
Whale and other fish oil.....	965,697
Spermaceti oil.....	572,763
Whalebone.....	337,714
Sperm candles.....	159,403

Total.....2,547,654

## THE FOREST.

Skins and furs.....	656,228
Ginseng.....	182,966
Staves, shingles, boats, hewn timber.....	1,776,749
Other lumber.....	60,314
Masts and spars.....	87,720
Oak bark and other dye.....	95,392
All manufactures of wood.....	1,697,828
Naval stores, tar, pitch, rosin and turpentine.....	845,164
Ashes, pot and pearl.....	515,603

Total.....5,917,994

## AGRICULTURE.

Beef, tallow, hides, horned cattle.....	2,053,358
Butter and cheese.....	1,654,157
Pork, (pickled) bacon, lard & live hogs.....	9,245,885
Horses and mules.....	96,982



Sheep.....	16,305
Wool.....	81,015
Wheat.....	1,756,848
Flour.....	11,380,582
Indian corn.....	7,966,369
Indian meal.....	1,169,625
Rye meal.....	218,248
Rye, oats and other small grain & pulse	139,793
Biscuit or ship bread.....	364,318
Potatoes.....	83,313
Apples.....	93,904
Rice.....	2,569,362
Tobacco.....	5,804,207
Cotton.....	66,396,967
Hemp.....	8,458
Flaxseed.....	4
Hops.....	29,123
Brown sugar.....	24,906
Indigo.....	49

Total.....111,059,378

## MANUFACTORIES.

Soap and tallow candles.....	627,280
Leather, boots and shoes.....	151,774
Household furniture.....	237,342
Coaches and other carriages.....	95,923
Hats.....	64,967
Saddlery.....	37,276
Wax.....	121,720
Spirits from grain.....	67,129
Beer, ale, porter and cider.....	51,320
Snuff and tobacco.....	613,044
Linseed oil and spirits of turpentine...	148,056
Cordage.....	41,636
Iron, pig, bar and nails.....	149,358
Castings.....	60,175
All manufactory of iron.....	886,629
Spirits from molasses.....	288,452
Sugar refined.....	129,001
Chocolate.....	1,941
Gunpowder.....	131,297
Copper and brass.....	66,203
Med. drugs.....	220,894
Cotton, printed and colored.....	466,574
“ white.....	3,955,117
“ Nankeen.....	3,202
“ twist, yarn and thread.....	92,555
All manuf. of cotton.....	415,680
Flax and hemp, cloth and thread.....	1,000
Bags and all manuf. of do.....	4,544
Wearing apparel.....	75,945
Combs and buttons.....	38,136
Brushes.....	2,944
Billiard tables.....	701
Umbrellas and parasols.....	5,800
Leather and Morocco skins (not sold per lb.....	9,427
Fire engines and apparatus.....	458
Printing presses and type.....	28,031
Musical instruments.....	23,713
Books and maps.....	94,427
Paper and stationery.....	86,827
Paints and varnish.....	55,145
Vinegar.....	14,036
Earthenware and stoneware.....	10,632
Manufactured glass.....	101,419
“ tin.....	13,143
“ pewter and lead.....	13,196
“ marble and stone.....	20,282
“ gold and silver and gold leaf.....	4,502
Gold and silver coin.....	956,874
Artificial flowers and jewelry.....	8,557
Molasses.....	7,442
Trunks.....	5,699
Brick and lime.....	8,671
Salt.....	82,972

Total.....	10,798,473
Coal.....	40,396
Lead.....	30,198
Ice.....	95,027

Total.....165,621

## ARTICLES NOT ENUMERATED.

Manufactured.....	1,408,278
Other articles.....	769,557
Total.....	2,177,835

Sum total value of domestic exports.....\$132,666,955

## PUBLICATIONS.

Published on 1st Jan., 1850.

PART I, MEDIUM FOLIO OF SPECIMENS OF THE STONE, IRON, AND WOOD BRIDGES, VIADUCTS, TUNNELS, CULVERTS, &c., of the United States Railroads, illustrated by a Series of Drawings, from actual measurement of the works, including Plans, Elevations, Sections and details of each Structure, accompanied by remarks on the relative merits of the various forms of construction adopted, as regards economy, strength and durability, with Specifications, Estimates, Bills of Timber, Iron, etc., of the several structures; and an APPENDIX, illustrative of the art of Bridge Building as at present practised in Europe; and numerous original Designs for Bridges, Viaducts, Culverts, etc.; the whole calculated to meet the exigencies of Engineers, and assist Draftsmen, Bridge Builders, Mechanics and Students.

BY GEORGE DUGGAN,  
ARCHITECT AND CIVIL ENGINEER.

New York: D. Appleton & Co.; John Wiley & Geo. P. Putnam; and Stringer & Townsend. Boston: Charles C. Little and James Brown. Albany: Little & Co. Philadelphia: George S. Appleton; Griggs, Elliott & Co., and Thomas Cowperthwait. Buffalo: G. H. Derby & Co. Baltimore: Cushing & Brother. Washington: Frank Taylor. Charleston: McCarter & Allen. Cincinnati: H. W. Derby & Co., and Bradley & Anthony. Richmond: A. Morris. Nashville: W. T. Berry & Co. New Orleans: T. L. White and David Felt & Co. St. Louis: J. Halsall. Natchez: W. H. Fox.

## ADDRESS.

The want of a work such as the present is designed to be, has long been felt and regretted by the Engineering profession generally, but more especially by those engaged in Railroad constructions; where the number and variety of bridges are such as to make the mode of construction adopted of especial importance to all parties interested in such undertakings, whether the mechanical skill, durability, or economy of these structures is considered. As regards the present undertaking, no pains or expense shall be spared to render it complete and efficient to the fullest extent for the various purposes of the Engineer, practical Bridge Builder, and Mechanical Student.

As an extensive circulation alone can meet the heavy expenses incurred in getting up this work, it is hoped that the members of the Engineering profession generally—for whose advantage it is especially designed—will extend to it the encouragement and support so necessary to its success and completion, in a manner that shall reflect credit on the spirit of enterprise, at present so rife in this great country, and also bear testimony to the mechanical skill and ingenuity of our Engineers.

## MODE OF PUBLICATION, TERMS, ETC.

This important work will be published monthly, and completed in about Twelve Parts, each part containing Two double or Four single large folio plates, accompanied by appropriate letter press descriptions, Specifications, Estimates of the cost, Bills of Timber, Iron, &c. of each structure, presenting at a glance the comparative merits, as regards economy, strength, and durability of the various modes of Bridge construction at present practised by the most eminent Engineers in the United States.

The Engraving has been entrusted to first rate artists, and is executing in a manner that cannot fail to give satisfaction, while the price (Seventy-five cents a Month) is such as will place it within the reach of all who take an interest in our great mechanical contrivances.

Engineers in charge of Railroad Works, are respectfully requested to send Drawings of their Drawings of Bridges, &c., with the Specifications, Bills of Timber, Iron, &c., to GEORGE DUGGAN Railroad Journal Office 136 Nassau Street New York, with a view to their insertion in this work. The Drawings should not, however, exceed 17 x 10, or 21 x 17 inches.

N. B.—Members of the profession, and others wishing to become subscribers, are requested to send their names without delay to the author, as above, as the publication of the names of Subscribers in one of the early Parts has been determined on, and no more copies of the work will be printed than are found necessary to supply Subscribers.

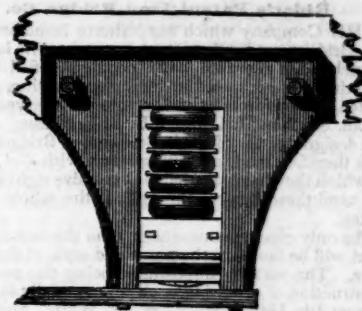
## Cop Waste.

CLEAN COP WASTE, suitable for cleaning Railroad, Steamboat and Stationary Engines, constantly on hand and for sale by

KENNEDY & GELSTON,  
54 Pine St., New York.

October 27, 1849,

3m

FULLER'S PATENT  
INDIA RUBBER SPRING.

THESE SPRINGS ARE THE CHEAPEST, the lightest and most durable of any yet known. They are easily applied to new or old cars, and there is small possibility of any accident occurring to them. Other parties through Mr. Ray set up claims to an India Rubber Spring which, though the same in principle, is very inferior in its working and durability. Actions are in progress for an Infringement on Fuller's Patent against parties using that Spring.

The superiority of Fuller's Spring over that claimed by Mr. Ray is fully established and has frequently been testified to. The following are from gentlemen who have had much experience with both Springs.

"It will afford me pleasure to recommend your springs to the companies in this region, in preference to Ray's which I am confident are inferior in mechanical arrangement to yours." JOHN M'RAE,  
Engineer S. Carolina R. R., Charleston.

"I do not hesitate to allow you to say that I concur in Mr. M' Rae's opinion that Ray's springs are inferior in mechanical arrangement to Fuller's. I repeatedly expressed that opinion long before Mr. M' Rae had seen your springs (as I believe) and entertain it still." WM. PARKER,  
Gen'l Supt. of Baltimore and Ohio R. R.

Office of Sup't Norwich & Worcester R.R. Co. }  
December 26, 1849. }

"I most fully concur in the opinion of Jno. McRae, Engineer of S. Carolina Railroad, that 'Rays Springs are inferior to Fuller's Springs,' and shall with pleasure recommend them to all Railroad Companies for adoption. I have used both springs on this road and have no hesitation in saying that I should in all cases prefer Fuller's Spring."

SAM'L H. P. LEE, JR.,  
Supt. and Engineer.

Office B. & P. R. R. Co., }  
Boston, 20th December, 1849. }

"This company have cars fitted up with both Ray's and Fuller's 'Metallic India Rubber Springs,' and I do not hesitate to say that Fuller's arrangement is very much superior to Ray's."

W. RAYMOND LEE, Supt.

The following result has been obtained by experiment upon one railroad.  
A set of Trucks fitted  
with Steel Springs cost \$190.77 and weigh 2355 lbs.  
The same with Fuller's  
Springs, 131.71 " 1911 lbs.

Difference, \$59.06 " 444 lbs.  
Not only is there an advantage in the cost, but owing to the great reduction in weight, the car can be made lighter throughout, and so an enormous saving in weight may be effected in a Train.

G. M. KNEVITT, 38 Broadway, N. Y.,  
General Agent for the U. S.

The Springs can also be had of  
JAMES LEE & CO., 13 India Wharf, Boston, &  
JAS. THORNLEY, 110 Chestnut St., Philad.  
January 2, 1850.

## Wanted,

A Second Hand Locomotive, weighing from 10 to 12 tons. It is required that in answer, it will be stated, whether the engine has inside or outside connections—the price of the same delivered at Portland, Maine, and terms of payment expected. Address  
VIRGIL D. PANIS,  
President Buckfield Branch Railroad,  
Portland, Maine.

November 10, 1849.

3t45

**The New York Iron Bridge Co.**

LATELY KNOWN AS

**Rider's Patent Iron Bridge Co.**

THE Company which has hitherto furnished these Bridges, under the patent granted to the late Nathaniel Rider, deceased, have become satisfied that all the principles embraced in their construction, are included in a previous patent, granted in the year 1839, to Col. Stephen H. Long, of U. S. Engineers, and by him designated as "Long's Suspension Bridges," and have therefore made an arrangement with Col. Long, by which they have secured the exclusive right to make and vend these Bridges throughout the whole United States.

The only change consequent upon the new arrangement will be found in the name and style of the Company. The parties composing it being the same, the construction of the Bridges will be essentially the same. August 4th, 1849.

M. M. White, Agent,

au7tf

No. 74 Broadway, New York.

**To Contractors.**

**BLUE RIDGE TUNNEL.**—The Contractor for the BLUE RIDGE TUNNEL, having failed to come forward and comply with his engagements, notice is hereby given that PROPOSALS will again be received at the Office of the Board of Public Works, until the 21st of January, 1850, for the construction of the Tunnel and approaches.

The Tunnel will be 4260 feet long, 21 feet high and 16 feet wide, with a ditch on each side; it will pass 700 feet under the top of the Mountain and decline from West to East at the rate of 70 feet to the mile. The approaches will be in the aggregate about 2000 feet long, and consist of deep cuts, high embankments, some walling and bridging.

Proposers who have not already examined the localities will do well to call at the office of the Engineer, on the spot, where they will obtain all necessary information.

The payments will be CASH, with a reservation of 20 per cent till the entire completion of the work; besides which, the contractor is required by law to give bond, with satisfactory bond and security in Virginia. The amount of the bond required will be thirty thousand dollars.

The best testimonials and an energetic prosecution of the work are expected: the contract and bond to be executed within ten days after the letting, and the work to begin *bona fide* within sixty days after the same period.

C. CROZET.

Engineer Blue Ridge Railroad.

Terms of proposals and specifications may be obtained at both offices.

**NOTICE TO****Superintendents of Railroads.**

**TYLER'S PATENT SAFETY SWITCH.**—The undersigned would respectfully call their attention to his Patent Safety Switch, which from long trial and late severe tests has proved itself perfectly reliable for the purpose for which it was intended. It is designed to prevent the train from running off when the switch is set to the wrong track by design or accident. The single rail or gate switch is established as the best and safest switch for the ordinary purpose of shifting cars from one track to another, but it is liable to the serious evil of having one track open or broken when connected with the other. My improvement entirely removes this evil, and while it accomplishes this important office, leaves the switch in its original simplicity and perfection of a plain unbroken rail, connecting one track with the other ready for use.

The following decision of the Commissioner of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.

P. B. TYLER.

(COPY.)

UNITED STATES PATENT OFFICE, }  
Washington City, D.C., April 28th, 1846. }

Sir: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3d Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision. The testimony in the case is now open to the inspection of those concerned.

Yours respectfully,

EDMUND BURKE,  
Commissioner of Patents.

To Philo B. Tyler.

Any further information may be obtained by addressing P. B. TYLER, Springfield, Mass., or JOHN PENDLETON, Agent, 149 Hudson St., New York.

34tf

**To Railroad Companies and Contractors.**

**FOR SALE.**—Two Locomotive Engines and Tenders, at present in use on the Beaver Meadow Railroad, being too light for their coal trains, but well calculated for either gravel or light passenger trains.

They weigh, in running order, about 8 tons each—having one pair of driving wheels 4 feet diameter, 4 truck wheels 30 inches diameter, with cylinders 10 in. diameter, and 18 inches stroke of piston. Tenders on 4 wheels. Address JAMES ROWLAND,

Prest. Beaver Meadow Railroad &amp; Coal Co., Philadelphia.

or, L. CHAMBERLAIN, Sec'y,  
at Beaver Meadow, Pa.

May 19, 1849.

20tf

**ENGINEERS.****Arrowsmith, A. T.,**

Buckfield Branch Railroad, Buckfield, Me.

**Banks, C. W.,**

Civil Engineer, Vicksburg, Miss.

**Berrien, John M.,**

Michigan Central Railroad, Marshall, Mich.

**Buckland, George,**

Troy and Greenbush Railroad.

**Clement, Wm. H.,**

Little Miami Railroad, Cincinnati, Ohio.

**Cozzens, W. H.,**

Engineer and Surveyor, St. Louis, Mo.

**Davidson, M. O.,**

Eckhart Mines, Alleghany Co., Maryland.

**Fisk, Charles B.,**

Cumberland and Ohio Canal, Washington, D. C.

**Felton, S. M.,**

Fitchburgh Railroad, Boston, Mass.

**Floyd-Jones, Charles,**

South Oyster Bay, L. I.

**Czowski, Mr.,**

St. Lawrence &amp; Atlantic Railroad, Montreal, Canada.

**Gilbert, Wm. B.,**

Rutland and Burlington Railroad, Rutland, Vt.

**Grant, James H.,**

Nashville and Chattanooga R. R., Nashville, Tenn.

**Harry, P.,**

Binghamton, New York.

**Holcomb, F. P.,**

Southwestern Railroad, Macon, Ga.

**Higgins, B.,**

Mansfield and Sandusky Railroad, Sandusky City, O.

**Johnson, Edwin F.,**

New York and Boston Railroad, Middletown Ct.

**Latrobe, B. H.,**

Baltimore and Ohio Railroad, Baltimore, Md.

**Sours, Peter,**

Dauphin und Susquehanna Coal Co., Dauphin, Pa.

**Miller, J. F.,**

Worcester and Nashua Railroad, Worcester, Mass.

**Morris, Elwood,**

Schuylkill Navigation, Schuylkill Haven, Pa.

**Morton, A. C.,**

Atlantic and St. Lawrence Railroad, Portland, Me.

**McRae, John,**

South Carolina Railroad, Charleston, S. C.

**Nott, Samuel,**

Lawrence and Manchester Railroad, Boston.

**Prichard, M. B.,**

East Tennessee and Georgia R. R., Cleveland, Tenn.

**Reynolds, L. O.,**

Central Railroad, Savannah, Ga.

**Roebbling, John A.,**

Trenton, N. J.

**Roberts, Solomon W.,**

Ohio and Pennsylvania Railroad, Pittsburgh, Pa.

**Robinson, James P.,**

Androscoggin &amp; Kennebec Railroad, Waterville, Me.

**Schlatter, Charles L.,**

Northern Railroad (Ogdensburg), Malone, N. Y.

**Stark, George.,**

Bost., Con. and Mont. R. R., Meredith Bridge, N. H.

**Steele, J. Dutton,**

Pottstown, Pa.

**Trimble, Isaac R.,**

Philad., Wil. &amp; Baltimore Railroad, Wilmington, Del.

**Tinkham, A. W.,**

United States Fort, Bucksport, Me.

**Thomson, J. Edgar.,**

Pennsylvania (Central) Railroad, Philadelphia.

**Whipple, S.,**

Civil Engineer and Bridge Builder, Utica, N. Y.

**Williams, E. P.,**

Auburn and Schenectady Railroad, Auburn, N. Y.

**Williams, Charles H.,**

Milwaukee, Wisconsin.

**Wormeley, Preble,**

Central Ohio Railroad, Zanesville, Ohio.

**BUSINESS CARDS.****Cumberland, (Md.) Coals for Steaming, etc.**ORDERS RECEIVED FOR AND FILLED  
by J. COWLES, 37 Wall St., N. Y.**George O. Robertson,**

Broker in Scotch and American Pig Iron; Bar Iron,

Lead, Spelter, Tin, Copper, etc.,

NO. 4 LIBERTY PLACE, MAIDEN LANE,

(Near Broadway.)

NEW YORK

**DUNLAP'S HOTEL,**

On the European Plan,

NO. 135 FULTON STREET,

Between Broadway and Nassau St.,

NEW YORK.

**Manufacture of Patent Wire ROPE AND CABLES,**

For Inclined Planes, Suspension Bridges, Standing Rigging, Mines, Cranes, Derrick, Tilters, &amp;c., by

JOHN A. ROEBLING, Civil Engineer,

TRENTON, N. J.

**Samuel D. Willmott,**

MERCHANT, AND MANUFACTURER OF

CAST STEEL WARRANTED SAWS,

IMPORTER OF THE

GENUINE WICKESLY GRINDSTONES,

NO. 8 LIBERTY STREET,

NEW YORK.

**Doremus & Harris,**

ANALYTICAL &amp; CONSULTING CHEMISTS,

179 BROADWAY, NEW YORK.

SCHOOL OF CHEMISTRY.

**Dudley B. Fuller & Co.,**

IRON COMMISSION MERCHANTS,

No. 139 GREENWICH STREET,

NEW YORK.

**Manning & Lee,**

GENERAL COMMISSION MERCHANTS,

NO. 51 EXCHANGE PLACE,

BALTIMORE.

Agents for Avalon Railroad Iron and Nail Works.  
Maryland Mining Company's Cumberland Coal 'CED'  
—'Potomac' and other good brands of Pig Iron.



### Railroad Car Manufacturer's Furnishing Store.

**F. S. & S. A. MARTINE,**

IMPORTERS AND MANUFACTURERS OF

### RAIL ROAD CAR & CARRIAGE LININGS,

PLUSHES, CURTAIN MATERIALS, ETC.,  
112 WILLIAM ST., NEAR JOHN.

3-4 and 6-4 Damasks, Union and Worsted; Mo-  
reens, Rattinets, Cloths, Silk and Cotton Velvets,  
English Bunting

### Walter R. Johnson,

CIVIL AND MINING ENGINEER AND AT-  
torney for Patents. Office and Laboratory, F St.,  
opposite the Patent office, Washington, D. C.

### S. W. Hill,

Mining Engineer and Surveyor, Eagle River,  
Lake Superior.

### Starks & Pruyn,

MANUFACTURERS OF ALL KINDS OF  
STEAM BOILERS,

52 and 54 Liberty, corner of Pruyn street

Nathan Starks, Special Partner  
Wm. F. Pruyn, **ALBANY.** R. H. Pruyn.  
Iron Railing, Bank and Vault Doors, Iron Shutters  
Bridge and Roof Bolts, Heavy Jobbing and Forging  
of all kinds.

For particulars see Adv. in another column.

### To Engineers and Surveyors.

E. BROWN AND SON Mathematical inst. mak-  
ers No. 27 Fulton Slip, New York, make and keep  
for sale, Theodolites, Levelling inst., Levelling rods,  
Surveyors Compasses, and Chains, Cases of Mathe-  
matical drawing insts. various qualities, together with  
a general assortment of Ivory Scales and small insts.  
generally used by Engineers.

### Samuel Kimber & Co.,

### COMMISSION MERCHANTS

WILLOW ST. WHARVES, PHILADELPHIA.

AGENTS for the sale of Charcoal and Anthracite  
Pig Iron, Hammered Railroad Car and Locomotive  
Axles, Force Pumps of the most approved con-  
struction for Railroad Water Stations and Hydraulic  
Rams, etc., etc.

July, 27, 1849.

### James Herron, Civil Engineer,

OF THE UNITED STATES NAVY YARD,  
PENSACOLA, FLORIDA.

PATENTEE OF THE

### HERRON RAILWAY TRACK.

Models of this Track, on the most improved plans,  
may be seen at the Engineer's office of the New York  
and Erie Railroad.

### To Railroad Companies.

—WROUGHT IRON WHEELS—  
SAFETY AND ECONOMY.

### NORRIS' LOCOMOTIVE WORKS, SCHENECTADY, NEW YORK,

Are Manufacturing Wrought Iron Driving, Truck,  
Tender, and Car Wheels—made from the best Ameri-  
can Iron. Address E. S. NORRIS.  
May 16, 1849.

### Machinery Warehouse.

S. C. HILLS, No. 43 Fulton street, New York, has  
constantly for sale Steam Engines, Boilers, Lathes,  
Chucks, Drills, Planers, Force and Suction Pumps;  
Tenoning, Morticing and Boring Machines, Shingle  
Machines, Bolt and Nut Machines, Belting, Oil, Iron  
and Lead Pipe; Rubber, Percha and Leather Hose,  
&c., &c.

S. C. H.'s arrangements with several machine shops  
are such that he can supply, at very short notice, large  
quantities of machinery.

November 23, 1849.

### Cruse & Burke,

Civil Engineers, Architects and Surveyors,  
Office, New York State Institution of Civil Engineers,  
STATE HALL, ALBANY., N. Y.

Drawings, specifications and surveys accurately ex-  
ecuted. Pupils instructed theoretically and practical-  
ly at a moderate premium.

May 26, 1849.

### Eaton, Gilbert & Co.,

Railroad Car, Coach and Omnibus Builders,  
TROY, N. Y.

### Hudson River Foundry, THOMAS & COLLINS,

130 Quay Street, Albany.

### To Railroad & Navigation Cos.

MR. M. BUTT HEWSON, Civil Engineer, offers his  
services to Companies about to carry out the surveys  
or works of a line of Navigation or Railroad. He can  
give satisfactory references in New York City as to his  
professional qualifications; and will therefore merely  
refer here to the fact of his having been engaged for  
upwards of two years conducting important Public  
Works for the British Government.

Communications will find Mr. Hewson at the office  
of the Railroad Journal, 54 Wall Street, New York.

### Alfred W. Craven,

Chief Engineer Croton Aqueduct, New York.

### IRON.

#### Iron.

Pig Iron, Anthracite and Charcoal; Boiler and Flue  
Iron, Spring and Blistered Steel, Nail Rods, Best Re-  
fined Bar Iron, Railroad Iron, Car Axles, Nails, Stove  
Castings, Cast Iron Pipes of all sizes, Railway Chairs  
of approved patterns for sale by

COLEMAN, KELTON & CAMPBELL,  
109 N. Water St., Philadelphia.

IRONDALE PIG METAL, MANUFACTURED  
and for sale by the Bloomsburg Railroad Iron Co.  
DUDLEY FISHER, Treasurer.  
75 N. Water St., Philadelphia.

### Railroad Iron.

500 Tons, afloat, weighing 57 pounds per lineal  
yard, for sale by

COLLINS, VOSE & CO.,  
158 South St.  
New York, November 17, 1849.

### Railroad Iron.

THE Undersigned, Agents for Manufacturers, are  
prepared to contract to deliver Rails of superior  
quality, and of any size or pattern, to any ports of dis-  
charge in the United States.

COLLINS, VOSE & CO.,  
158 South St.

New York, November 17, 1849.

### Railroad Iron.

1600 Tons, weighing 60 lbs. per yard.

185 " " 57 1/2 "  
580 " " 53 "

of the latest and most approved patterns. For sale by  
BOORMAN, JOHNSTON & CO.,  
119 Greenwich street.

New York, Oct. 13, 1849.

### Railroad Iron.

THE Undersigned have on hand, ready for immedi-  
ate delivery, various patterns of Iron Rails, of  
best English make, and manufactured in conformity  
with special specifications.

They offer also to import and contract to deliver  
ahead—on favorable terms.

DAVIS, BROOKS, & CO.,  
68 Broad street.

New York, Oct. 11, 1849.

Drawings and Patterns of the most approved  
Rail—and specifications of quality and make of same,  
are on hand at their office, for examination of parties  
who may desire to inspect the same. D., B. & Co.  
Oct. 11, 1849.

CUT NAILS OF BEST QUALITY, BAR IRON  
(including Flat Rails) manufactured and for sale  
by  
FISHER, MORGAN & CO.,  
75 N. Water St., Philadelphia.

### Railroad Iron.

THE Undersigned offer for sale 3000 Tons Railroad  
Iron at a fixed price, to be made of any required  
ordinary section, and of approved stamp.

They are generally prepared to contract for the de-  
livery of Railroad Iron, Pig, Bar and Sheet Iron—or  
to take orders for the same—all of favorite brands, and  
on the usual terms.

ILLIUS & MAKIN.  
41 Broad street.

March 29 1849.

### Glendon Refined Iron.

Round Iron, Band Iron, Hoop Iron,  
Square " Flat " Scroll "

Axles, Locomotive Tyres,

Manufactured at the Glendon Mills, East Boston, for  
sale by  
GEORGE GARDNER & CO.,  
5 Liberty Square, Boston, Mass.

Sept. 15, 1849.

PATENT HAMMERED RAILROAD, SHIP &  
BOAT SPIKES. — The Albany Iron Works  
have always on hand, of their own manufacture, a  
large assortment of Railroad, Ship and Boat Spikes  
from 2 to 12 inches in length, and of any form of head.  
From the excellence of the material always used in  
their manufacture, and their very general use for rail-  
roads and other purposes in this country, the manu-  
facturers have no hesitation in warranting them fully  
equal to the best spikes in market, both as to quality  
and appearance. All orders addressed to the subscrib-  
ers at the works will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at factory prices, of  
Erastus Corning & Co. Albany; Meritt & Co., New  
York; E. Pratt & Br. 140, Esplanade, Md.

### LAP—WELDED WROUGHT IRON TUBES

FOR

### TUBULAR BOILERS,

FROM 1 1/2 TO 8 INCHES DIAMETER.

These are the ONLY Tubes of the same quality  
and manufacture as those so extensively used in  
England, Scotland, France and Germany, for Lo-  
comotive, Marine and other Steam Engine Boilers

THOMAS PROSSER,

Patentee.

28 Platt street, New York.

### Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO  
contract for the delivery of English Railroad Iron  
of favorite brands, during the Spring. They also re-  
ceive orders for the importation of Pig, Bar, Sheet, etc.  
Iron.

THOMAS B. SANDS & CO.,

22 South William street,

February 3, 1849.

New York.

### Iron Store.

THE Subscribers, having the selling agency of the  
following named Rolling Mills, viz: Norristown,  
Rough and Ready, Kensington, Triadelphia, Potts-  
grove and Thorndale, can supply Railroad Companies,  
Merchants and others, at the wholesale mill prices for  
bars of all sizes, sheets cut to order as large as 58 in.  
diameter; Railroad Iron, domestic and foreign; Loco-  
motive tire welded to given size; Chairs and Spikes;  
Iron for shafting, locomotive and general machinery  
purposes; Cast, Shear, Blister and Spring Steel; Boil-  
er rivets; Copper; Pig iron, etc., etc.

MORRIS, JONES & CO.,

Iron Merchants,

Schuylkill 7th and Market Sts., Philadelphia.  
August 16, 1849.

ly33

### Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, AL-  
legany county, Maryland, having recently pass-  
ed into the hands of new proprietors, are now prepar-  
ed, with increased facilities, to execute orders for any  
of the various patterns of Railroad Iron. Communi-  
cations addressed to either of the subscribers will have  
prompt attention. J. F. WINSLOW, President

Troy, N.Y.

ERASTUS CORNING, Albany.

WARREN DELANO, Jr., N.Y.

JOHN M. FORBES, Boston.

ENOCH PRATT, Baltimore, Md.

November 6, 1848.

### Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO  
take orders for Railroad Iron to be made at their  
Phoenix Iron Works, situated on the Schuylkill Riv-  
er, near this city, and at their Safe Harbor Iron Works,  
situated in Lancaster County, on the Susquehanna  
river; which two establishments are now turning out  
upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly  
supplied with rails of any required pattern, and of the  
very best quality.

REEVES, BUCK & CO.,

45 North Water St., Philadelphia.

March 15, 1849.

**Monument Foundry.**

**A. & W. DENMEAD & SON,**  
Corner of North and Monument Sts.,—Baltimore,  
HAVING THEIR

**IRON FOUNDRY AND MACHINE SHOP**

In complete operation, are prepared to execute faithfully and promptly, orders for Locomotive or Stationary Steam Engines, Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw Mills, Slide, Hand or Chuck Lathes, Machinery for cutting all kinds of Gearing, Hydraulic, Tobacco and other Presses, Car and Locomotive patent Ring Wheels, warranted,

Bridge and Mill Castings of every description, Gas and Water Pipes of all sizes, warranted, Railroad Wheels with best faggoted axle, furnished and fitted up for use, complete

Being provided with Heavy Lathes for Boring and Turning Screws, Cylinders, etc., we can furnish them of any pitch, length or pattern.

Old Machinery Renewed or Repaired—and Estimates for Work in any part of the United States furnished at short notice.

June 8, 1849.

**Iron Wire.**

**REFINED IRON WIRE OF ALL KINDS,**  
Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by

**ICHABOD WASHBURN.**

Worcester, Mass., May 25, 1849.

**American and Foreign Iron.****FOR SALE,**

300 Tons A 1, Iron Dale Foundry Iron.

100 " 1, " " "

100 " 2, " " "

100 " " Forge " "

400 " Wilkesbarre " "

100 " "Roaring Run" Foundry Iron.

300 " Fort " "

50 " Catocin " "

250 " Chikiswalungo " "

50 " "Columbia" "chilling" iron, a very superior article for car wheels.

75 " "Columbia" refined boiler blooms.

30 " 1 x 1/2 Slit iron.

50 " Best Penna. boiler iron.

50 " "Puddled" " "

50 " Bagnall & Sons refined bar iron.

50 " Common bar iron.

Locomotive and other boiler iron furnished to order.

**GOODHUE & CO.,**

New York. 64 South street

**American Pig, Bloom and Boiler Iron.**

**HENRY THOMPSON & SON,**  
No 57 South Gay St., Baltimore, Md.

Offer for sale, Hot Blast Charcoal Pig Iron made at the Catocin (Maryland), and Taylor (Virginia), Furnaces; Cold Blast Charcoal Pig Iron from the Cloverdale and Catawba, Va., Furnaces, suitable for Wheels or Machinery requiring extra strength; also Boiler and Flue Iron from the mills of Edge & Hilles in Delaware, and best quality Boiler Blooms made from Cold Blast Pig Iron at the Shenandoah Works, Va. The productions of the above establishments can always be had at the lowest market prices for approved paper.

American Pig Iron of other brands, and Rolled and Hammered Bar Iron furnished at lowest prices. Agents for Watson's Perth Amboy Fire Bricks, and Rich & Cos. New York Salamander Iron Chests. Baltimore, June 14, 1849. 6 mos

**LAP-WELDED WROUGHT IRON TUBES**  
for Tubular Boilers, from 1 1/2 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by

**IRVING VAN WART,**  
12 Platt street, New York.

**JOB CUTLER, Patentee.**

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

**Railroad Iron.**

**THE TRENTON IRON COMPANY ARE NOW** turning out one thousand tons of rails per month, at their works at Trenton, N. J. They are prepared to enter into contract to furnish rails of any pattern, and of the very best quality, made exclusively from the famous Andover iron. The position of the works on the Delaware river, the Delaware and Raritan canal, and the Camden and Amboy railroad, enables them to ship rails at all seasons of the year. Apply to

**COOPER & HEWITT, Agents.**

October 30, 1848. 17 Burling Slip, New York.

**Pig and Bloom Iron.**

**THE SUBSCRIBERS ARE AGENTS FOR THE SALE OF NUMEROUS BRANDS OF CHARCOAL AND ANTHRACITE PIG IRON,** suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

**A. WRIGHT & NEPHEW,**  
Vine Street Wharf, Philadelphia.

**Iron.**

**THE SUBSCRIBERS HAVING RESUMED THE AGENCY** of the New-Jersey Iron Company, are prepared to execute orders for the different kinds and sizes of Iron usually made at the works of the company, and offer for sale on advantageous terms.—

150 tons No. 1 Boonton Foundry Pig Iron.

100 " No. 2 do. do.

300 " Nos. 2 & 3 Forge do. do.

100 " 2 Glendon do. do.

140 " Nos. 2 & 3 Lehigh Crane do. do.

100 " No. 1 Pompton Charcoal do. do.

100 " New-Jersey Blooms

50 " New-Jersey Faggoting Iron, for shafts

Best Bars, 1/2 to 4 inch by 1/2 to 1 inch thick.

Do do Rounds and Squares, 1/2 to 3 inch.

Rounds and Squares, 3-16 to 1 inch.

Half Rounds, 1/2 to 1 in. Ovals & Half Ovals 1/2 to 1 1/2 in.

Bands, 1 1/2 to 4 inch. Hoops, 1/2 to 2 inch.

Trunk Hoops, 1/2 to 1 1/2 in. Horse Shoe & Nut Iron.

Nail Plates. Railroad Spikes.

**DUDLEY B. FULLER & Co.,** 139 Greenwich-st. and 85 Broad-st.

**WILLIAM JESSOP & SONS'****CELEBRATED CAST-STEEL.**

The subscribers have on hand, and are constantly receiving from their manufactory.

**PARK WORKS, SHEFFIELD,**

Double Refined Cast Steel—square, flat and octagon.

Best warranted Cast Steel—square, flat and octagon.

Best double and single Shear Steel—warranted.

Machinery Steel—round.

Best and 2d gy. Sheet Steel—for saws and other purposes.

German Steel—flat and square, "W. I. & S." "Eagle"

and "Goat" stamps.

Genuine "Sykes," L Blister Steel.

Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by

**WM. JESSOP & SONS,**

91 John street, New York.

Also by their Agents—

Curtis & Hand, 47 Commerce street, Philadelphia.

Alex'r Fullerton & Co., 119 Milk street, Boston.

Stickney & Beatty, South Charles street, Baltimore.

May 6, 1848.

**SPRING STEEL FOR LOCOMOTIVES, TENDERS AND CARS.**

The subscriber is engaged in manufacturing spring steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and whenever used its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address **J. F. WINSLOW, Agent,** Albany Iron and Nail Works.

**JOHNSON, CAMMELL & Co's****Celebrated Cast Steel,**

**AND**  
**ENGINEERING AND MACHINE FILES,** which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.

**JOHNSON, CAMMELL & CO.,**  
100 William St., New York.

November 23 1849.

**American Cast Steel.**

**THE ADIRONDAC STEEL MANUFACTURING CO.** is now producing, from American iron, at their works at Jersey City, N. J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.

May 28, 1849.

**To Steam Engine Builders.**

**THE Undersigned offer for sale, at less than half its cost, the following new machinery,** calculated for an engine of 62 inches cylinder and 10 feet stroke, viz: 2 Wrought Iron Cranks, 60 inches from centre to centre.

1 Do. do. Connecting Rod Strap.

2 Do. do. Crank Pins.

1 Eccentric Strap.

1 Diagonal Link with Brasses.

1 Cast Iron Lever Beam (forked).

The above machinery was made at the West Point Foundry for the U. S. Steamer Missouri, without regard to expense, is all finished complete for putting together, and has never been used. Drawings of the cranks can be seen on application to

**HENRY THOMPSON & SON,**

No. 57 South Gay St., Baltimore, Md.

Sept. 12, 1849.

**Railroad Instruments.**

**THEODOLITES, TRANSIT COMPASSES,** and Levels, with Fraunhoffers Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by

**E. & G. W. BLUNT,**

No. 179 Water St., cor. Burling Slip.

New York, May 19, 1849.

**Mattewan Machine Works.**

**THE Mattewan Company have added to their Machine Works an extensive LOCOMOTIVE ENGINE** department, and are prepared to execute orders for Locomotive Engines of every size and pattern—also Tenders, Wheels, Axles, and other railroad machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.

**STATIONARY ENGINES, BOILERS, ETC.,** Of any required size or pattern, arranged for driving Cotton, Woolen, or other Mills, can be had on favorable terms, and at short notice.

**COTTON AND WOOLLEN MACHINERY,** Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.

**MILL GEARING,**

Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.

**TOOLS.**

Turning Lathes, Slabbing, Planing, Cutting and Drilling Machines, of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fishkill Landing, or at 39 Pine street, New York.

**WM. B. LEONARD, Agent.**

**NOTICE.**

**TO BRIDGE BUILDERS, BRIDGE COMPANIES, and Other Individuals and Associations,** who have constructed or used Bridges involving the combined principle of Bracing, Counter-bracing and Trussing by means of counteracting braces, keys, wedges, screws, etc., as set forth and explained in my Bridge Patent of 1830, in the words following, to wit: "A system of Counter-bracing, by means of which the truss frames are rendered stiff and unyielding, and the bridge kept in uniform action whether loaded or unloaded"—NOTICE is hereby given, that in all cases in which said combined principle has been introduced into bridges, without due license or authority from me, and without my having been duly remunerated therefor, will be regarded as infringements upon my rights and privileges, and that an amicable adjustment and settlement of all my claims in the premises may be effected by prompt application to my duly authorized Agents therefor, viz: Messrs. Clinton, Knight and Brother, of Cincinnati, Ohio, or Daniel A. Webster, Esq., 8 Pell street of the city of New York.

**STEPHEN H. LONG, Patentee.**

Louisville, December 10, 1849.



**To Railroad Companies.**

**FOR SALE**—A Second-hand Locomotive Engine and Tender, of about 10 tons weight, in good order, and warranted to perform well. Any company wanting a cheap engine for a passenger or light burden train, will rarely meet with an opportunity so favorable as the present. The engine and tender are in perfect running order, and will be tested to the satisfaction of any one wishing to purchase. Price \$1,500.

Address **J. B. MOORHEAD,**  
Frazer P.O., Chester county, Pa.

P.S.—The Engine can be seen by calling on H. Osmond & Co., Car-builders, Broad st., Philadelphia.  
September 6, 1849.

**India-rubber for Railroad Cos.**

**RUBBER SPRINGS**—Bearing and Buffer—Fuller's Patent—Hose from 1 to 12 inches diameter. Suction Hose. Steam Packing—from 1-16 to 2 in. thick. Rubber and Gutta Percha Bands. These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

**HORACE H. DAY,**  
Warehouse 23 Courtlandt street.  
New York, May 21, 1849.

**Fire Brick.**

THE Subscribers have constantly on hand Rafford's Stourbridge, Oak Farms Stourbridge, Lister, Wortley, Red and White Welsh Fire Bricks, common and fancy shapes.

**ROOFING SLATES,**

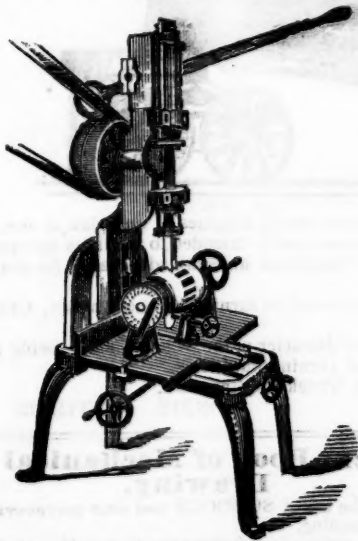
from the best Welch quarries, and of all sizes. Also,

**COAL,**

of all kinds—Liverpool Orrell and Cannel, Scotch, New Castle, Pictou, Sidney, Cumberland, Virginia, and all kinds of Anthracite coals. Also,

Pig Iron, Salt, etc., etc., for sale at the lowest market price. Apply to

**SAMUEL THOMPSON & NEPHEW,**  
275 Pearl and 43 Gold Sts., New York.  
November, 23, 1849.

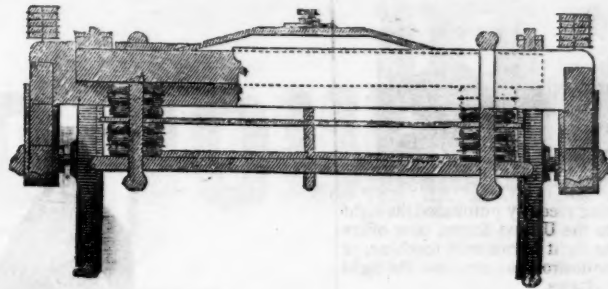
**Capt. Alfred Swingle's PATENT BORING & MORTISING MACHINE.**

The above Machine was invented by A. SWINGLE, of Texas, in 1846, and Letters Patent were taken out in July, 1848. As a labor saving Machine it stands unrivalled even in these days of improvements. Its uses are innumerable; it may be successfully applied to Doors, Sashes, Carriages, Wheel-Hubs, and in fact to all kinds of work where the Auger and Chisel can be brought to bear.

The only limit to the speed of the working of this machine is the heating of the tools used. It will perform at least the labor of twelve men, and in vastly better manner, and can be worked equally well by steam power or by hand. It has been used and has given universal satisfaction.

For further information apply to H. B. TEBBETTS, 40 Wall St., New York, to whom all orders are to be addressed.

New York, December 15, 1849.

**FULLER'S PATENT INDIA RUBBER CAR SPRINGS.**

**RAILROAD COMPANIES** are cautioned, before purchasing Springs, to examine the actual patents and judge for themselves.

Persons, under the Title of the New England Car Company, seeking fraudulently to invade Fuller's rights have put forth so many statements for the purpose of misleading the public, that an enumeration of some facts is absolutely necessary, for the purpose of putting persons interested upon their guard.

Fuller's patent is for the application of Discs of India-rubber with Metal Plates, for forming Springs for Railway Cars and Carriages—either one disc and two plates, or ten discs and plates, or any other number, are equally covered by the patent. Fuller is not bound to the use of short discs—he may use long discs and plates.

Ray's patent is simply and wholly the forming of air tight rubber cylinders, with hoops or bands round the outside, and the combination of elasticity of India rubber, with the elasticity of atmospheric air confined in the cylinder, and in no part of his patent is he authorized to use the form of spring which he is now fraudulently supplying to Railroad Companies. Such springs are direct and positive infringements of the very letter of Fuller's patent.

Fuller's patent is dated October, 1845, Ray's patent August, 1848.

The spring patented by Ray never has been put in operation, and never can be made useful for Railroad cars.

A mere experiment, even if made, it is well known does not prove an invention; and it is ridiculous for such parties to hope to mislead the Presidents and Superintendents of Railroad companies, by claiming the invention because Ray alleges he made an experiment—which Fuller had made before him—had actually brought into working order, and obtained a patent for—and this too before Mr. Ray states he made his experiment—and that experiment not claimed to have been applied to a car or carriage.

Besides, the invention could not have been developed until India rubber, properly Vulcanised, could be made of a sufficient thickness. In the United States the art of vulcanising rubber by steam heat, (by which

means only can a body of rubber having any considerable thickness be vulcanised,) was not introduced until after the grant by the American government of the patent for springs to Fuller—whereas the process of vulcanising rubber by steam heat was invented in England about three years previously, and was used by Fuller there. This fact refutes entirely the claim of invention put forth by Mr. Ray, and proves the impossibility of his pretensions being true.

Fuller was the first and only inventor of the spring. A Mr. Dorr, whose connection with Mr. Goodyear is well known in this country, applied in England to Mr. Fuller, after he had published and patented his invention, and introduced another party for the purpose of obtaining the agency for the United States. They were furnished with a complete set of drawings and models, and with instructions to make arrangements for the supply of material of American manufacture—from that hour to the present not a single communication has been received from them. Some of these identical models have been traced into the hands of parties now seeking to invade Fuller's rights, and who have exhibited them as specimens of their own invention.

After this, the conveyance was made by Goodyear to certain parties here for the use for railroad springs of what he calls his Metallic rubber. Comment is unnecessary.

There are 5 or 6 different processes for the manufacture of vulcanised rubber, patented by as many different parties, some here, some in England, either of which would probably make good springs.

A large and powerful company has been organised under Fuller's patent, the particulars of which shall be given very shortly.

An action has been commenced against three railroad companies for infringement; and all other parties will assuredly be prosecuted if they continue farther to infringe upon Fuller's patent.

**W. C. FULLER,**

The only persons authorised to supply the Springs are **G. M. KNEVITT**, 38 Broadway, N. York, General Agent for the U. S.; and **JAS. LEE & Co.**, 13 India Wharf, Boston. **JOHN THORNLEY**, Chestnut st., Philad.

**Arch St. Machine Shop. BIRKENBINE, MARTIN & TROTTER,**

Makers of

**STEAM ENGINES,**

and

**HYDRAULIC MACHINERY,**

NO. 16 ARCH STREET,

PHILADELPHIA,

Will construct Steam Engines, Pumps, for Draining Mines and Land; supplying Water to Towns, Factories, Farms, etc;

Also, Street Stops, Fire Plugs, Water Tanks, and Hydraulic Rams, with (BIRKENBINE'S PATENT VALVES.)

B., M. & T. contract for Warming and Ventilating Buildings by Steam or Warm Water.

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NO. 14 OLD YORK ROAD, PHILADELPHIA.

Importer and manufacturer of

New Castle } Grindstones, of all sizes and grits.

Nova Scotia } Millstones, made to order, with all

Wickersly } the recent improvements.

French Burr } Fire Bricks and Tiles of various

Cocahoe } sizes.

Cologne } Burr Blocks, Bolting Cloths, Mill Irons, etc.

American and } Patent compressed

Garnkirk }

**To the Proprietors of Rolling Mills and Iron Works.**

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

**F. & T. TOWNSEND.**

Albany, August 18, 1849.

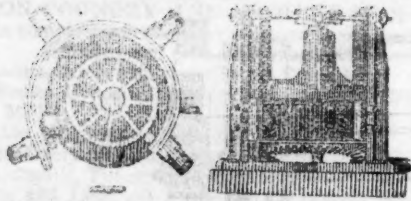
**Steam Boiler Explosions.**

THE Subscriber having been appointed sole Agent for Faber's Magnetic Water Gauge, is now ready to supply the trade, and also individuals with this celebrated instrument. Besides the greatest safety from explosion resulting from its use, it is a thorough check against careless stoking and feeding. In marine engines it will regulate the exact quantity required in the "blow off." Pamphlets containing full information, can be had free on application to the Agent,

**JOSEPH P. PIRSSON,**  
Civil Engineer, 5 Wall st.

## MACHINERY.

## Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phoenixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous; considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll rounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

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THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery for making Spikes, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, Agent,  
Troy Iron and Nail Factory, Troy, N. Y.

## RAILROAD WHEELS.

**CHILLED RAILROAD WHEELS.**—THE UNDERSIGNED are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

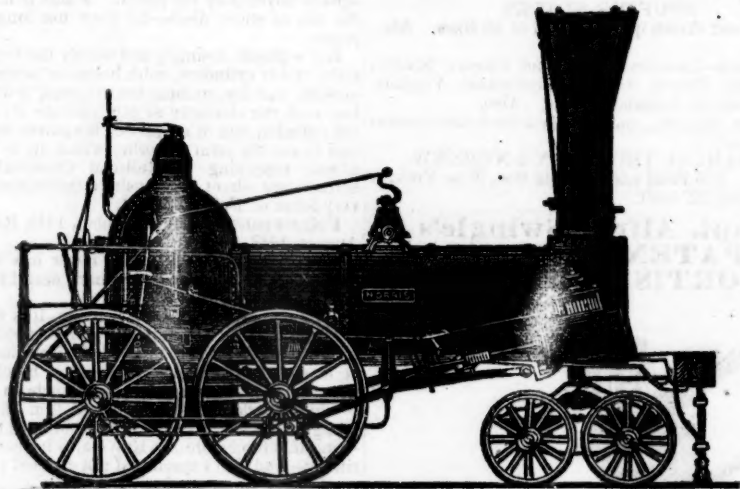
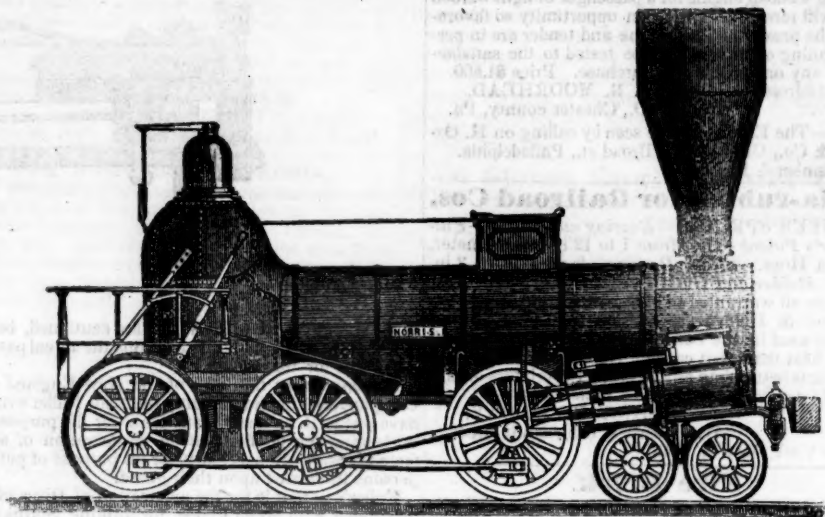
A. WHITNEY & SON,  
Willow St., below 13th,  
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**CHILLED RAILROAD WHEELS.**—THE UNDERSIGNED, the Original Inventor of the Plate Wheel with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,  
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country.

A. T.  
Kensington, Philadelphia Co.,  
March 12, 1848.

NORRIS' LOCOMOTIVE WORKS.  
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THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

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Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tyres are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

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**LAWRENCE'S ROSENDALE HYDRAULIC Cement.** This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floods, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years. For sale in lots to suit purchasers, in tight papered barrels, by

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The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

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